

JPRS 75077

6 February 1980

# East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 1976

**FBIS**

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<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO. JPRS 75077	2.	3. Recipient's Accession No.																		
4. Title and Subtitle <b>EAST EUROPE REPORT: ECONOMIC AND INDUSTRIAL AFFAIRS, No. 1976</b>		5. Report Date <b>6 February 1980</b>		6.																		
7. Author(s)		8. Performing Organization Rept. No.																				
9. Performing Organization Name and Address <b>Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201</b>		10. Project/Task/Work Unit No																				
11. Contract(C) or Grant(G) No. (C) (G)		12. Sponsoring Organization Name and Address  As above																				
13. Type of Report & Period Covered		14.																				
15. Supplementary Notes																						
16. Abstract (Limit 200 words)  This serial report contains information on economic theory, organization, planning and management; major agreements on and development of trade within CEMA and outside the Bloc; articles on all aspects of the materials, services, machine, electronics, and precision equipment industries; and concepts and attainments in agriculture, forestry, and the food industry.																						
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b. Initiators/Open-Ended Terms																						
c. COSATI Field/Group 5C, 13I																						
18. Availability Statement <b>Unlimited Availability Sold by NTIS Springfield, Virginia 22161</b>		19. Security Class (This Report) <b>UNCLASSIFIED</b>	20. Security Class (This Page) <b>UNCLASSIFIED</b>	21. No. of Pages <b>84</b>																		
				22. Price																		

6 February 1980

**EAST EUROPE REPORT**  
**ECONOMIC AND INDUSTRIAL AFFAIRS**  
**No. 1976**

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PRESENT, FUTURE CEMA INTEGRATION DESCRIBED

Budapest NEPSZABADSAG in Hungarian 8 Jan 80 pp 4-5

[Article by Oleg Bogomolov, corresponding member of the Soviet Academy of Sciences and director of the Economic Institute of the Academy's Socialist World System]

[Text] The experiences of recent years show that the social and economic progress of the countries in the socialist community depends more and more on the progress of the socialist economic integration that is going on in CEMA. Approval of the complex program has given a renewed impulse to this process. Commodity trade among the CEMA countries jumped from 36.5 billion rubles in 1971 to 103 billion rubles in 1978, and the internationalization of production reached a high degree in various industrial branches, for example, in the ball bearing and the machine tool industries and in the manufacture of transportation machinery, and in electronics.

Since approval of the complex program, the most important factor in the life of CEMA is the cooperation that has developed in the supply of fuels and raw materials. One of the most important results of socialist integration in this area is that about 70 percent of the rapidly increasing import needs of the socialist countries has been assured on the basis of cooperation. Moreover, the CEMA deliveries are much more favorable and economical to the socialist countries than the transactions that are signed on world markets. Not counting the Soviet Union, the CEMA countries required in 1975 about 580 million tons of energy sources, of which they covered 70 percent from their own production. In 1980, the CEMA countries--again not counting the Soviet Union--indicated their energy source requirements to be at 780 million tons, and here only 60 percent could be covered from domestic production. The increased demand was covered chiefly by petroleum, natural gas and electricity imports from the Soviet Union. Between 1976 and 1980 the Soviet Union delivered 800 million tons of fuels to the CEMA countries, 43 percent more than in the previous five-year plan. Half of this amount consisted of petroleum and petroleum products. This year the socialist countries will be receiving Orenburg natural gas, the annual export of which will soon reach 15.5 billion cubic meters.

A significant part of the rapidly increasing iron ore needs of the CEMA countries continues to be covered by the Soviet Union. In 1975, the deliveries were about 21 million tons, and in 1980 it is expected that the deliveries will be 26 million tons; and in 1990--according to forecasts on the basis of available orders--the import demand on Soviet iron ore may reach 40 million tons.

In respect to the future of integration, the long-range special programs, which provide for a unified strategy and the development of raw materials, food supplies and transportation, are of basic importance.

Although in the foreseeable future trade in Soviet raw material supplies will still form the overwhelming bulk of the products for the processing industries of other countries, already we can sense the increasing effectiveness of mutual work specialization in the continuing increase in commodity trade, chiefly other commodity groups, above all, the supply of machinery and equipment. The main line for the deepening of socialist integration and all its aspects will undoubtedly continue to be international production specialization and cooperation based on the most modern technical bases. We are taking measures to see that this process is subjected to the solution of theoretically new technical tasks, and that we lead them in the direction of increasing production and of replacing goods being produced at a loss with particularly good-quality products. The CEMA countries are pressing forward with a whole series of important agreements, for example, in the manufacture of nuclear power plant equipment, which in addition to bringing about a significant concentration of production would assure the establishment of new and modern branches that would for its part speed up technical development. Of course, this is not a simple matter. We need to do complicated organizational work, which above all requires the improvement of contractual prices and foreign exchange rates, and in the CEMA organization and in the given individual countries a simplification in the coordination of the problems.

There are already today many important branches--machine manufacture, chemical, textile, shoe and food industries--where the production volume in the CEMA partner countries makes up more than one-half of Soviet production. The large and highly varied import demand of the Soviet economy makes it possible for our partners to establish and develop efficient specialized production based on large-series, mass production. Experiences thus far with cooperation among CEMA countries show that the Soviet Union's attitude on the development of socialist integration has a beneficial effect on the entire process. We could point to numerous examples showing that in the current trade thinking the long-range and unified interests of the community are being realized in a far-reaching manner. In the principles of export and import price formation, in the conditions for credit extension and technical cooperation, in the

case of goods being produced at a loss, the features of the new type of economic ties are evident. The basis of these ties is mutual effort at the economic development of all the socialist countries and their convergence on one another.

The experiences of CEMA cooperation and integration bear witness for 30 years now that this organization approaches and solves the most important international problems in a planned way. CEMA is an organization which not only proclaims in operational regulations the elimination of historical differences in the economic development of countries but steadfastly strives in its operation to attain these goals.

The 10 years that have passed in realizing international integration occupies a special place in the history of CEMA. Here belongs the intensifying cooperation of the CEMA countries in every field of economic activity, in science and technology from which every country derives important advantages and which increases the international role of CEMA and respect for it. As they consistently proceed on the path of integration and they direct their cooperation toward the speeding up of technical development and the economic efficiency of production, the CEMA countries make it easier for one another to carry out their economic plans and promote the consolidation of the material base of the whole community. Between 1951 and 1978 the volume of CEMA industrial production increased by 12 times. This included the following: by 22 times in Bulgaria, by 8.3 times in Hungary, by 8.4 times in the GDR, 13 times in Mongolia, by 14 times in Poland, by 29 times in Romania, by 11.5 times in the Soviet Union, and by 7.9 times in the CSSR.

The economic development of CEMA countries continued at an unchanged rate in the 1970's. This further modified the international economic power relations to the advantage of socialism. For example, between 1971 and 1977, the ratio of the CEMA countries in world steel production rose from 27 percent to more than 30 percent, electricity from 20 percent to 22 percent, natural gas from 20.3 percent to 27.8 percent. Today the CEMA countries surpass the Common Market not only in the manufacturing volume of many important industrial items but also in per capita average (steel, coal, natural gas, iron ore, pig iron, cement, cotton cloth, and sugar).

Agriculture in most of the CEMA countries is characteristically intensive. Again, agricultural production between 1971 and 1977 was 21 percent higher on the average for the CEMA community than in 1964 to 1970. In Bulgaria, Hungary, the GDR and the CSSR the per hectare annual average for wheat production is near 40 quintals, in fact it exceeds this in some years. Despite the vicissitudes in the weather, the development of agricultural production is becoming more and more even. Of course, much remains to be done to satisfy the growing food needs of the population, to improve the nourishment structure, and to provide sufficient agricultural raw materials to the light and food industries.

In many European CEMA countries, consumption is palpably approaching the average level of the West European capitalist countries. At the same time, distribution in the socialist countries is much more even and just than in the capitalist countries. As compared to 1960, real wages of workers and employees increased in 1977 as follows: 1.7 in Bulgaria, 1.6 in Hungary, 1.8 in Poland, 2 in Romania, 1.7 in the Soviet Union, and 1.6 in the CSSR.

The rise in living standards, however, is characterized not so much by a quantitative increase in consumption as by an improvement in the quality of life. And here we find rising more urgently than before the problem of working out the socialist model of consumption, the search for paths that lead to development in this sphere and which depart from the consumption patterns of the capitalist countries. Of course, there are also difficulties in the way of an economic upswing. According to official reports we must at present reckon with such objective factors as make more complicated the conditions for economic development in the countries of the community. Supplies in energy and raw materials will require further important expenditures which with the worsening of production conditions for these products and with the manpower shortage is related to the fact that because of continuing fluctuations on the capitalist world market the foreign trade conditions are becoming worse. We must, therefore, firmly convert to the intensive methods of economic development.

The policies of the brotherly communist and workers' parties are pointed precisely in such a direction. Efficiency improvement requires the exploitation of every such advantage as the scientific-technical revolution affords the new order. Annually, the CEMA countries devote about 25 billion rubles to scientific research and experiments, which is about equal to what the United States devotes to this goal. More than 20 percent of the inventions in the whole world originate in CEMA countries.

Experiences of the CEMA countries show that in the acceleration of technical development in the growth of production efficiency and intensification the decisive condition is the improvement of the economy's management system, and the further broadening of individual creative thought and social activity.

The perfection of the economic mechanism is a long and complicated process, but it has already been accompanied by positive results. With the bolder application of economic incentives, it has been possible in many countries to start mobilizing the production reserves, supply the consumer market better, speed up the completion time for investments, and shape improved ratios in price formation.

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INTERNATIONAL AFFAIRS

BRIEFS

SHIP EXPORTS--On 10 January 1980 a ceremony was held at the Heroes of Westerplatte North Shipyard in Gdansk on the occasion of raising the banner on the 400th ship built in that shipyard for export. The ship carries the name "Uzgorsk" and is the fourth of a series of superseiners for tuna fishing using a circular net. The customer is a Soviet shipowner. This ship belongs to the most modern and the largest of that type in the world. Andrzej Surowiec, PZPR Gdansk Voivodship Committee secretary; Lev Vakhrameyev, the USSR Consul General in Gdansk; Mieczyslaw Tokarz, director general of the Association of the Shipbuilding Industry; as well as representatives of the voivodship administration authorities participated in the ceremony. A number of meritorious shipyard workers received State, ministerial, and regional decorations. [Text] [Warsaw GLOS PRACY in Polish 11-12-13 Jan 80 p 1]

CSO: 2600

IMPORTANCE OF INCREASED INDUSTRIALIZATION STRESSED

Tirana RRUGA E PARTISE in Albanian No 11, Nov 79 pp 14-25

[Article by Fiqiri Islami and Nezdet Hoxha: "Socialist Industrialization--a Necessity for an Uninterrupted and Independent Development on the Road to Socialism"; passages between slantlines printed in boldface]

[Text] Socialist Albania is completing 35 years of existence. These years, because of their importance and the content of revolutionary transformations, rates of development and social and economic changes, are unparalleled. Because of the standpoint of the level of development of production forces, Albania, from a backward agricultural country, which had not yet entered the phase of the capitalization of industrial development, was converted into an agricultural-industrial country and, for some time now, it is on the way of its conversion into an industrial-agricultural country with progressive industry and agriculture.

Former Albania, a deeply agrarian and backward country, without trained technical forces and workers, a source of raw and supplementary materials for the imperialist monopolies, today is using its above ground and sub-soil resources in an independent manner and has created and is creating new branches for its new heavy processing industry. Today our industry processes petroleum, copper, iron and a number of agricultural raw materials. Now it is producing machinery and equipment, chemical fertilizers, steel, cast iron and so forth. Today our country is in a position to provide maintenance for machinery and equipment, chemical fertilizers, steel, cast iron and so forth. Today our country is in a position to provide maintenance for machinery and equipment and to produce complete lines and plants, drilling probes for mineral and petroleum prospecting, lathes and looms, agricultural machinery and various means of transportation and so forth. The first tractor of Albanian manufacture was produced in 1978. The apogee and pride of our socialist industry are the Steel of the Party metallurgical combine, the Light of the Party hydroelectric power station, the Enver Hoxha auto-tractor combine, the petroleum processing plant in Bulish and so forth.

This great development is the result of the self-denying, persistent and creative work of the working masses, first of all, of the working class,

led with wisdom and farsightedness by the Albanian Workers Party, headed by Comrade Enver Hoxha. This development of our industry has its source in the correct party policy that has always relied on the teachings of Marxism-Leninism linked with the necessity, methods and characteristics of socialist industrialization. The rapid development of our industry has been carried out relying on our own forces and on the domestic material, financial and human resources of the country and has been achieved through a severe class struggle.

Making the balance-sheet of the victories achieved in the process of socialist industrialization of the country, Comrade Enver Hoxha, at the Seventh Congress of the Albanian Workers Party declared: "The party program for the building of a complex heavy and light industry and for its expansion with new sectors of modern production has been proven by practice to be a fully realizable program. Now we observe with satisfaction that industrialization at rapid rates is approaching more and more every day the objective established by the party, that is, the transformation of Albania from an agricultural-industrial country into an industrial-agricultural country" (Enver Hoxha, "Report to the Seventh AWP Congress," p 4).

The 35-year experience of our socialist construction fully proves the Marxist-Leninist thesis that underdeveloped countries that enter the road to socialism, just as was our country when it entered this road, must immediately solve two main problems, closely linked with each other: building socialism and overcoming the backwardness they have inherited. The main link for the successful and most immediate solving of these two problems is the rapid development of industry based on the natural resources and concrete conditions of the country. "The transformation of our country from a backward technical, economic and semi-feudal situation directly into the building of socialism, passing over the stage of the capitalization of industrial development," Comrade Enver Hoxha has stressed, "assigned to our party the creation of industry through the socialist industrialization and electrification of the country, as one of the most vital and urgent tasks" (Enver Hoxha, "Report to the Fourth AWP Congress," p 36).

On the basis of the necessity and opportunities created for the socialist industrialization of the country, as a result of the establishment of the people's government, the party perfected the program of socialist industrialization, whose general strategical objectives were: the building of a complex heavy and light industry and its expansion with new sectors of modern production and the transformation of our country, in the beginning, into an agricultural-industrial country and, later, into an industrial-agricultural country, with advanced industry and agriculture.

The implementation of the party program for the socialist industrialization of the country put on the agenda a number of theoretical and practical problems that required a solution, such as the determining of the place and role of industry within the framework of the national economy and, especially in relation to agriculture; the determining of ratios and paces

of development for the production of means of production (group "A") and of consumer goods (group "B") within the framework of industrial production; the determining of the main branches, and the location and role of each branch; as well as the determining of the relationships, order and dimension within which the extraction and processing industries, the territorial placement of industry and so forth will be developed.

Based on thorough analysis of historical reality and guided by Marxist-Leninist teachings, the Albanian Workers Party developed and gradually solved these problems with political, ideological and socio-economic maturity. For each of these problems, the Albanian Workers Party found the solution that best fitted the needs, conditions and possibilities for the building of socialism and set the policy of industrialization for each stage of development of our socialist society.

The harmonious development of industry with agriculture, giving priority to the development of industry and to the development, on a priority basis, of the branches that produce means of production in comparison with the branches that produce consumer goods; the transition, step by step, from an essentially heavy extraction industry to an extraction and processing industry, utilizing the means and natural resources of the country in a complex manner; and all this by applying the principle of relying on one's own forces--have been and remain the characteristic features of the policy pursued and being pursued by the party for the socialist industrialization of the country.

/In harmony with the Marxist-Leninist concepts of the Albanian Workers Party that industry constitutes the leading branch and agriculture the basic branch of the economy, the ratios and rates of industrial and agricultural development have been established and maintained, giving priority to the development of industry./ Thus, in 1978 overall industrial production increased by 114.9 times compared to that of 1938; 27.6 times compared to 1950; and 4.6 times compared to 1960. Today the industrial production of 1938 is provided in less than 3 days. Also, agricultural production has been increased by about 5 times in comparison with 1938, 4.2 times in comparison with 1950 and 2.9 times in comparison with 1960.

The rapid development of industrial production has led to the change of ratios of general social production and of national revenues provided by industry and agriculture--the changes that, because of their nature, gave to the country, in the beginning, the characteristics of an agricultural-industrial country and, later, gradually but always more and more, the characteristics of an industrial-agricultural country. Pursuing such a policy, at the present time, it is possible for the volume of overall industrial production to take the main place in the total social production and of national revenues. Thus, while in 1950 industry produced 23.3 percent of the general social production and 11 percent of the national revenues, in 1978 industry produced 58.1 percent of the general social product and 45.4 percent of the national revenues.

The ratios created between industry and agriculture are among the main ratios on the basis of which our economy is developed, because, as also proven by practice, the harmonized development of industry and of agriculture is a necessary condition for the rapid development of all branches of the economy, on the basis of the principle of relying on one's own forces.

In the policy of the social industrialization of the country, the Albanian Workers Party is guided by the teachings of Marxism-Leninism that, /in the process of socialist industrialization, production of the means of production must be developed on a priority basis in comparison with the production of consumer goods./ This priority, Comrade Enver Hoxha teaches us, "has been and remains a correct and firm principle for the development of our industry" (Enver Hoxha, "Report to the Sixth Congress of the AWP," p 72). The party has also seen the increase, with priority, of the production of the means of production as a necessary condition for the rapid development of the consumer goods industry. Therefore, "the party," Comrade Enver Hoxha stresses, "along with the complex development, with priority of heavy industry, has also always valued the rapid development of the consumer goods production industry, directly linked with the continuous improvement of the living conditions of the people" (Enver Hoxha, "Report to the Seventh AWP Congress," p 52).

The policy pursued by the party in this field is reflected better than anywhere else in the rates of development of group "A" and group "B", as well as in the changes that they have sustained in the specific proportion of overall industrial production. Compared to 1938, in 1978, production of means of production increased by 145.9 times, while production of consumer goods increased by 82.5 times; compared to 1950, it increased by 34 times and 20.7 times respectively; and compared to 1960, it increased by 5.9 times and 3.2 times respectively. The average annual rate of increase in the production of the means of production for the 1950-1978 period has been 13.4 percent, while that of production of consumer goods was 11.4 percent. In 1978, compared to 1938, the specific proportion of group "A" in the overall industrial production increased from 50.1 percent to 64 percent, while that of group "B" dropped from 49.9 percent to 36 percent.

The rates and ratios, at which the branches that produce the means of production and those that produce consumer goods have been developed and are developing are always linked with and conditioned by each other. The struggle for fulfilling in time, in quality and in quantity the tasks in the branches that produce means of production and in those that produce consumer goods has been considered and is considered by the party as the struggle for fulfilling the plan in all branches of the economy and as a necessity for creating and strengthening the technical and material base of socialism, the continuous improvement of the well-being of the working masses, of increasing the defense capacity of the country and of successfully confronting the blockade and pressure of the fierce imperialist and revisionist encirclement.

In the process of socialist industrialization, the Albanian Workers Party has always taken into consideration the other requirement of the law on the increase, on a priority basis, of the production of means of production in comparison with the production of consumer goods--that is, that the means of production for the production of means of production must be increased more rapidly than the production of means of production for the production of consumer goods. The results are also good in this field. However, they are more noticeable, especially after 1960. An important indicator of the execution of this requirement by law is the pace of development of the means of work and of objects of work within the framework of the production of the means of production. Compared to 1960, in 1978, the production of means of production has been increased 6 times, that of means of work 16 times and that of objects of work 5.5 times. In 1960, the production of means of work was 4.8 percent of the production of means of production and that of objects of work 95.8 percent; while in 1978 they were 11.3 percent and 88.7 percent respectively.

The increase in the specific proportion of the production of means of work is one of the most important process of development of our socialist industry within the framework of the transformation of the country into an industrial-agricultural country, of building the technical and material base of socialism and of expanding the technical and scientific revolution, thus, making the economic and political independence of the country and sovereignty and defense of the free fatherland more unbreakable and more invincible.

With regard to the socialist industrialization of the country, /the party has also perfected and executed a correct policy in the direction of determining the place and role of every branch of industry./ In this framework, the mineral industry has made up and makes up the base and main supporting point for the development of all branches of industry. The main position of the mineral industry in the heavy industry has been determined by the fact that our country is rich in ores and that the mineral industry provides the economy with the most essential raw materials and constitutes the chief source for export. //For the development of various branches of industry and of the people's economy in general,// Comrade Enver Hoxha stresses, //the party has relied first of all on the mineral resources of the country and on their assimilation// (Enver Hoxha, "Report to the Seventh AWP Congress," p 42). Based on this, the party has established the order and size of development for the various branches of industry. Thus, the combustible materials industry has been considered as the decisive link for the development of industry and has developed in harmony with the needs of all the economy; the ferrous metallurgy industry and the non-ferrous metallurgy industry have developed in close relationship with the machine industry and are considered as the main supporting points of development for the machine industry; the chemical industry was established in accordance with the needs of the intensification of the economy and, first of all, of agriculture; and the electrical industry is considered as the necessary condition for developing all branches of the economy and for increasing social

labor productivity, therefore, it has preceded the development of various branches of the economy. Each of these industries has developed as a link of a single chain in full harmony with the other links and has served the process of building the technical and material base of socialism and the transformation of our country into an industrial-agricultural country.

The fulfillment of the targets assigned by the party for each five-year plan has made it possible not only to improve relationships between industry and agriculture and between the means of production and consumer goods, but also /to improve the whole structure of industrial branches,/ both those which produce means of production and those which produce consumer goods. The setting up of new branches and the expansion of the heavy processing industry, especially the setting up of the ferrous and non-ferrous metallurgy industries, the petroleum processing industry, the extension of the chemical and machine industries, as well as the enrichment of copper, chrome, coal and so forth have improved the structure of various industrial branches and are continuously increasing the level of independent action of our economy. The providing of most essential things for expanded socialist reproduction and for defense are continuously strengthening the economic independence of the country, are making our people's economy healthier and are making it more capable of successfully confronting all the consequences stemming from the continual political and economic pressure exerted upon our country by the capitalist and revisionist encirclement.

The correct policy pursued by the party in the field of improving the structure of industry emerges even more clearly if we compare the changes that have taken place in the specific proportion that some industrial branches hold in the overall industrial production. In 1938 the largest specific proportion among the branches that produce means of production was held by the petroleum industry with 12.7 percent of the overall industrial production, and then we have in turn: the bitumen industry with 5.5 percent; the construction materials industry with 4 percent; the machine industry with 3.7 percent; the electric energy industry with 2 percent; the chrome extraction industry with 1 percent; the coal extraction industry with 0.4 percent and so forth. Whereas, during the years of the people's government, the specific proportion of various branches of industry that produced means of production experienced emphasized changes. Thus, in 1976 the machine industry held 12.2 percent of the overall industrial production; the building materials industry, 8.6 percent; the petroleum industry, 7.9 percent; the copper industry, 4.2 percent; the electric energy industry, 3.8 percent; the iron-nickel industry, 1.6 percent; the coal industry, 1.2 percent; the chrome industry, 1.2 percent; the bitumen industry, 0.1 percent and so forth.

The appearance of the machine industry in the first place is an achievement of a very important qualitative result in the socialist industrialization of the country, on the road of development of the machine building industry, of that branch of industry that produces mechanized means of work, whose totality K. Marx called the "fibrous and muscular system of production"

(K. Marx, "Das Kapital," Volume 1, Book 1, p 247). Now we can say that our industry has a "fibrous and muscular system," well formed and capable of driving forward, with its own forces, the process of socialist industrialization, the development of production forces and the setting up of the technical and material base of socialism, as a necessity for the complete building of socialist society.

On the road to socialist industrialization, the Albanian Workers Party has devoted and is devoting /special attention to the development of the extraction and processing industry and the gradual transition from a mainly extractive heavy industry into an extraction and processing heavy industry./ "In order to strengthen the production forces of the country and to create a more effective structure of industry and of other branches, so that our economic independence is further strengthened," Comrade Enver Hoxha stresses, "the party devotes a great attention to the rapid development of the extraction and processing industry" (Enver Hoxha, "Report to the Seventh AWP Congress," p 44-45).

The extraction and processing industries are closely linked with each other; therefore, they have developed together, in harmony with the concrete conditions and opportunities of the country. The development of the extraction industry is conditioned, first of all by the resources of the country. The party, however, has always seen the development of this branch of industry as closely connected with the development of the processing industry, establishing definite ratios between them. In this field of qualitative and quantitative development, opportunities have been created for the development of the processing industry in increasingly greater ratios, having as an objective the processing in the country of all products of the extraction industry. Thus, in 1980 more than 65 percent of the volume of exports will be made up of goods domestically processed, compared to 46 percent in 1960. In 1980 it will be possible to enrich about 60 percent of the quantity of coal, about 23 percent of the chrome and about 62 percent of the copper and so forth.

The step by step transition from a heavy, mainly extraction industry into an extraction and processing industry marks, as Comrade Enver Hoxha has stressed, a new phase on the road towards the socialist industrialization of the country. In this phase, transition constitutes a decisive moment in giving priority to the means of production within the framework of the entire industry, in expanding the energy base and raw materials and in utilizing the resources and wealth of the country more rationally. It also marks a decisive moment in the qualitative change of the industrial independence of the country and in increasing the effectiveness of foreign trade by breaking through the imperialist and revisionist blockade and encirclement with new products of good quality that are more in demand and of great economic value.

/The extending of industry over all the territory of the country/ is another important characteristic of the socialist industrialization of our

country. The party has seen and sees the correct territorial distribution of industry as an important problem, not only as a simple problem of an economic nature, but also, first of all, as a social, political and strategical problem. Based on socialist principles about the territorial distribution of industry, in all the districts of the country, a complex industry, but also a specialized one, has been established with one or more branches, according to the conditions, opportunities and needs. Thus all the districts of the country have their machine industry, construction materials industry, timber industry, and light and food industries; the majority of districts have mineral and electrical industries; 10 districts have chemical industries; and 6 districts have petroleum and natural gas industries. The specific proportion that the various districts hold in the overall industrial production has been changing in favor of the industries that previously did not have a developed industry. As a result, all the districts of the country have overcome the onesided agrarian character and have been converted into agricultural-industrial districts; and some of these districts have been converted into industrial-agricultural districts. Now the working class of each district has developed and it is setting the tone for the whole economic and social life of the country. In this manner, the strategic task assigned by the party for transforming the country into an industrial-agricultural country is also being successfully fulfilled from the point of view of territorial expansion.

Successes in the socialist industrialization of the country have not been achieved easily; it was necessary to progress across a difficult road; and a fierce class struggle has been developed against "theories" and bourgeois and revisionist views, as well as against the activity of domestic and foreign enemies.

The Yugoslav revisionists, in the beginning, and Khrushchevite and Chinese revisionists later, with their views and "theories" and various forms and methods, tried to "argue" that establishing a complex national industry is not a necessity and that, in general, it is practically impossible for the small countries, therefore, for Albania, too. According to them, these countries can and must develop their industry in an onesided manner and not build a complex industry, because, the development of industry, with priority, compared to other branches, and the development of the means of production compared to consumer goods, is not required by law for all the countries. According to them, natural and climate conditions are the decisive factors for the development of production forces. Also, according to them, socialist industrialization can and must be achieved only with the aid and credits from the big countries and, absolutely, within the framework of specialization, cooperation and international distribution of works. Not infrequently have the domestic and foreign enemies tried to prove that, allegedly, Albania does not have the necessary raw materials for a modern industry and that, allegedly, our country cannot find the necessary financial, material and human means to set up industrial projects and so forth, and so forth.

Our party fought with courage and boldness against these views, pressures and sabotaging activities of the Yugoslav, Soviet and Chinese revisionists, as well as against those of our domestic enemies, from Tuk Jakova down to the group of Abdyl Kellezi and Koco Theodhosi who became the tools of our foreign enemies and, in coordination with them, tried to hamper the socialist industrialization of the country.

How hostile, anti-Marxist and reactionary were these views, attitudes and activities of our enemies and how correct, foresighted and Marxist-Leninist was and is the general line of our party on the socialist industrialization of the country is clearly proven by the great balance-sheet of victories and successes with which our people are coming to the great jubilee of the 35th anniversary of the liberation of the fatherland.

The increase of industrial production in comparison with the pre-liberation period is colossal. Let us look at our achievements in the field of industrialization after 1960, the period for which the modern revisionists feel so sorry for us. In 1978 overall industrial production, compared to 1960, increased more than 4.6 times and as follows: the electric industry 10.5 times; the chemical industry 49 times; the machine industry 19 times; the copper industry 24 times; the chrome industry 3.5 times; the coal industry 4 times; light industry 3.7 times; and so forth.

Comrade Enver Hoxha says: "Every socialist country, relying, first of all, on its own forces, must build a developed economy with a powerful industry and advanced agriculture, based on domestic resources and means; this economy must be in a position to guarantee the independence of the country and its uninterrupted progress on the road to socialism" (The AWP, Main Documents, Volume V, p 92).

The establishment and development of our national industry is one of the greatest achievements of the people's government in the field of the development of production forces, for building the adequate technical and material base of socialism. The results achieved within a very short historical period, the methods applied, the high paces of industrialization, the resources used for its financing and the social results that have been achieved testify to the correct policy pursued by the Albanian Workers Party in this field.

The development of industry was carried out and is being carried out in those directions that provide a most suitable structure for the technical and material base of socialism, in order that it will respond to the development of a multibranch economy, developing those branches that make it self-acting, independent and dynamic--capable of fulfilling the basic needs of the economy and of workers in any situation. It is precisely because of the correct party policy for the socialist industrialization of the country and for the harmonious development of all branches of the economy that today we have a powerful material and technical base, capable of supporting the whole economic and social development of the country with our own forces.

Today our economy provides more than 85 percent of the needs for consumer goods, more than 90 percent of the needs for spare parts and the exports fully cover imports. Today our industry satisfies one hundred percent of the needs for combustible materials and electric energy; it also exports petroleum, petroleum by-products and electric energy, at a time when the capitalist and revisionist world has plunged into a deep energy crisis. Also, in these 4 years of the Sixth Five-Year Plan, despite hostile attitudes and breaking off all economic agreements by the Chinese revisionists, our economy did not interrupt its development at high rates; industrial production and general social production increased more rapidly than the increase of the population. Also in the coming five-year plan, based on present achievements, the socialist industrialization of the country will make great steps forward. "This plan," Comrade Enver Hoxha stressed at the Fifth Congress of the Albanian Democratic Front, "which will be greater than the plans we have had so far, will open new and even more magnificent prospects to our country" (Enver Hoxha, "RRUGA E PARTISE," No 6, 1979).

Only by seeing in a complex manner the whole socio-economic development of the country and the prospects that are opened to it, will the greatness of the economic policy of our party for the socialist industrialization of the country come into view. The setting up of a multibranch industry, relying on domestic resources and on the natural wealth of our country, had made it possible for us even today under the conditions of the fierce imperialist and revisionist encirclement and the deep economic crises that have embraced the capitalist and revisionist world, as well as the great obstacles brought to us by the Chinese revisionists, to march forward and develop our economy with high rates, without stretching out our hand to anybody and without seeking aid and credits from the capitalist, bourgeois and revisionist countries. The successful covering of all expenses for removing the consequences of the earthquake of 15 April of this year, without affecting the general construction plan of 1979, also tells about the vitality of our socialist economy.

The successes achieved in the People's Socialist Republic of Albania in the process of socialist industrialization confirms the well known Marxist-Leninist thesis that even a small country, like Albania, is in a position to successfully build socialism, successfully develop its production forces, engage itself on the road of socialist industrialization and be very successful when it determinedly executes the great principle of relying on its own forces, when it is led on this road by a party that has Marxism-Leninism as an unfailing compass and that stands faithful to the very end to the interests of the working class, the fatherland, revolution and socialism.

On the basis of successes achieved and conditions established, new horizons have been opened to our country so that it might progress with even greater paces forward in the continuation of socialist industrialization. The reserves and opportunities are many, therefore, there is no room for euphoria

and self-satisfaction. This is not only because of the fact that the targets and tasks assigned by the party for the future are numerous and complicated, but also because, in the great work that is being done, there have been and are shortcomings that have become obstacles for a rational utilization of all existing reserves and of those that are continuously created by our socialist economic and social system, for the complete use with high effectiveness of the technical and material base that has been established.

The present stage of industrial development and the necessity to always progress with high rates, demand, among other things, a determined work for the utilization of existing producing capacities more broad, more deeply and with great effectiveness. An essential factor for this remain the development and expansion of the technical and scientific revolution, especially in the field of application, at a broader level, of advanced technology, or chemistry and electrification of production, of mechanization and automation of work processes and of the perfection of forms of social organization of work.

With regard to the further development of the extraction and processing industries of special importance, in the present stage and for the future, is the discovery of as many new mineral-rich areas and raw materials as possible, as well as the execution of party guidelines for the domestic processing of all mineral ores, renouncing the exportation of crude mineral ores. This, however, requires further expansion of studies, experimentation of new scientific methods and a more organized dissemination of progressive experience, in order that we might receive higher technical and economic indices from the same raw materials.

Along with the strengthening of the economy and the establishing of great industrial projects, concrete conditions have been created for speeding up the rates of increasing work means in comparison with those of work projects, in order to intensify work not only to keep the existing technical-material base in good condition and to produce spare parts in the country, but also to move on, more extensively, to the production of machinery and complete lines and plants. Thanks to the powerful machine base that we have today, we are in a position to produce not only large, medium and small machinery and spare parts in series, but also single machines, according to the experience gained by the small machine bases, thus, blocking the path to their importation. This, however, requires that the party guideline concerning centralization, specialization and cooperation in production, especially in the machine industry, be correctly implemented.

The continuous and uninterrupted increase of labor productivity has been and remains a basic issue for raising industrial production. However, the fulfillment of the tasks for increasing labor productivity is linked with a number of factors of a political, economic, organizational and technical nature, within the framework of which, in the present conditions, an important role is assumed by the perfection of socialist organization of work and the implementation of technical norming of work at a broader level and so

forth. Of special importance for improving effectiveness of production and of labor productivity are the further reduction of material expenditures and the economical use of raw materials, of combustible materials and of electric energy, using advanced technology, unifying norms for the same work and same production and so forth.

The chief factors for fulfilling the tasks of the further development of our socialist industry, for improving the effectiveness of production, and for developing and expanding the technical and scientific revolution are our new man, the great army of our working class and the people's intelligentsia--tempered with Marxist-Leninist revolutionary ideology and trained on a high educational, technical and professional level. The number of workers with higher level of training and of specialists with high and middle education, as well as their experience, is constantly increasing, becoming a real great force for the development and expansion of the technical and scientific revolution in all the fields that guarantee improvement of work effectiveness and the acceleration of rates of socialist industrialization.

The road pursued during the 35 years of the building of our socialist society and the experience that has been gained prove the correctness of the political and economic policy of our party in connection with the socialist industrialization of the country. Therefore, the consistent continuation of this policy is a necessary condition for progress at high and steady paces. The increasing of industrial production and or its role in overall industrial and agricultural production, the continuous increase of the specific role of the production of means of production, the continuous improvement of the structure of industrial branches, the improvement of the role of the machine industry and of the machine building industry, the continual raising of the level of processing of raw materials in order to achieve their complete processing in the country, and so forth are among the main directions and tasks entrusted to our industry in the future for the transformation of our country into an industrial-agricultural country, for the complete building of the material and technical base of socialism, for increasing the economic and political independence of the country and the defense capacity of our country and for the gradual and continuous improvement of the material and cultural well-being of the working people.

9150  
CEO: 2100

ECONOMIC DEVELOPMENT DURING 9-MONTH PERIOD IN 1979

Sofia STATISTICHESKI IZVESTIYA in Bulgarian No 3, 1979 [no page given]

[Text] General Notes

The present issue is a quarterly publication containing annual, quarterly and monthly statistical data on basic indicators characterizing the socio-economic development of the Bulgarian People's Republic.

The STATISTICHESKI IZVESTIYA program covers 12 sections:

- I. Basic Data on the Development of the National Economy.
- II. Population.
- III. Population Living Standard.
- IV. Labor.
- V. Capital Investments.
- VI. Industry.
- VII. Agriculture.
- VIII. Transportation.
- IX. Communications.
- X. Domestic Trade and Prices.
- XI. Tourism.
- XII. Foreign Trade.

Data for all sectors are according to the organizational structure and composition of the enterprises in the respective period.

The indicators are shown in terms of value based on prices for the corresponding year. The annual indicators of industrial and agricultural output, capital investments, and trade, and foreign trade prices and monthly industrial output indicators are computed on the basis of comparable prices. The annual indicators are computed on the basis of 1970 figures. Those for a period of less than a year, on the basis of the corresponding period of the preceding year.

Data on monetary income, expenditures, and consumption by households are based on the representative survey of household budgets.

Data for the current year are estimates and are subject to rectification in subsequent issues.

#### Interpretation of Abbreviations and Symbols

O--amount lesser than one-half of the respectively used unit.

- --none.

.--no data.

PAK--industrial-agrarian complex.

APK--agroindustrial complex.

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**Development of the National Economy in the First Nine Months of 1979**

In the first nine months of 1979 the labor collectives in the various national economy sectors continued at an unabated pace the struggle for finding and maximally utilizing reserves, the ever more extensive application of the measures included in engineering plans, and the ever fuller development of initiatives in the socialist competition. All this created real prerequisites for the reaching of positive results in the implementation of the basic plan assignments for the first nine months. Compared

with the previous year stable rates of growth were achieved. This was a characteristic trend in all areas of the national economy.

### Capital Investments

Capital investments in excess of 3.3 billion leva were made in the development of the material and technical base of the national economy; 40 percent were for modernizing and reconstructing production capacities. In terms of their sectorial breakdown, most of the funds continued to be channeled into basic structure-determining material production sectors such as industry, agriculture, and transportation. In the first nine months of the year a high percentage of capital investments (14 percent) went into the development of the housing and communal economy. This is a direct manifestation of the party's line of steadily upgrading the living standard of the population. Capital assets worth 2 billion 292 million 700,000 leva were commissioned in the various national economic sectors.

### Industry

The industrial branches overfulfilled their nine-month plan. Compared with the same period last year their output rose 6.4 percent. The rate achieved was 0.4 higher than the one achieved in the first nine months of 1978 compared with 1977.

The overall generation of electric and thermal power rose 3.4 percent. A total of 23.5 billion kilowatt hours of electric power were produced, or 778 million 100,000 kilowatt hours more than the respective period in 1978.

The output of the fuel industry rose considerably, by 9.4 percent. The amount of coal mined--21.8 million tons--is about two million tons above the output in the first nine months of 1978. The output of ferrous metallurgy rose 4.5 percent. Steel production rose 10,000 tons.

The development of the two basic structure-determining sectors in our industry--machine building and chemical--was characterized by its particularly high and stable pace. The following additional amounts were produced: machine tools, 10 percent; fork-lift trucks and electric hoists, 6 percent each; phosphorus fertilizers, 2 percent; calcinated soda, 12 percent; sulfuric acid, 2 percent, and so on.

The production of construction materials is expanding, thus satisfying to an ever greater extent the growing needs of extensive construction projects. Overall output rose six percent while cement production rose seven percent.

Implementing the party line of steadily upgrading the living standard of the population, the production of consumer goods is rising steadily.

Their quality is improving and their variety is being broadened. Output rose as follows: textile industry, 6.2 percent; clothing industry, 1.3 percent; and food industry, 8.3 percent. Compared with last year more woolen fabrics, meat, canned vegetables, cheese, and others were produced.

All okrugs increased their industrial output. The most significant increases were registered in Mikhaylovgrad, Tolbukhin, Yambol, and Blagoevgrad.

Implementing the decisions of the National Party Conference, the labor collectives in industry are making efforts to reach high-quality and production effectiveness. Labor productivity per individual among the industrial-production personnel in state industry rose 5.1 percent. The highest pace was achieved in the following sectors: fuel industry, 8.9 percent; textile industry, 7.1 percent; and machine building and metal processing industry, 5.7 percent.

In the third quarter the average monthly wage of industrial-production workers and employees rose 6.4 percent compared with the corresponding period in 1978.

#### Agriculture

A number of organizational and scientific and technical measures were implemented in the course of the nine-month period aimed at upgrading agricultural production effectiveness, such as to guarantee the successful implementation of the annual planned assignments. The number of basic farm herds rose considerably compared with the same period of last year: cattle, by 24,000; sheep, by 18,000; and hogs, by 107,000.

Livestock productivity rose. The average milk production per cow reached 2,271 liters or 194 liters more than in the first nine months of 1978; average egg laying per hen reached 150 eggs (an increase of 5 eggs).

The increased number and productivity of the livestock ensured a considerable increase in livestock output. A total of 115 million liters of milk and 43 million eggs were produced additionally.

Compared with last year bigger quantities of products were purchased as follows: meat, 53,000 tons; milk, 150 million liters; and eggs, 124 million.

#### Transportation

The expansion and modernizing of the material and technical base of transportation continued in the first nine months of the year. Compared with the same period in 1978 0.8 percent more passengers were transported. Results characterizing the technical and economic level of the various transport facilities are improving steadily.

## Communications

The telegraph-postal network of the country is improving. Compared with the first nine months of 1978 income from communications services rose 10 percent.

## Trade

Retail trade by the trade organizations rose 3.7 percent; the growth for the trade network equaled 3.4 percent and for public catering, 4.6 percent. Sales of several groups of commodities rose as follows: meat, 5.0 percent; meat products, 6.6 percent; cheeses, 4.0 percent; butter, 10.8 percent; silk fabrics, 5.9 percent; upper knitted goods, 3.5 percent; furniture, 8.8 percent, and so on.

Bulgaria's foreign economic relations are developing intensively. Its participation in socialist economic integration is broadening and intensifying. Foreign trade rose 13.1 percent. Most of the trade is with the USSR and the other members of the socialist comity (75 percent of exports and 82 percent of imports). Our foreign trade relations with the non-socialist countries are developing favorably as well. With them Bulgaria is proving to be an ever more desired and sought after trade partner. In the first nine months of the year the highest share of exports (45 percent) was that of machines and equipment for industrial purposes. This clearly characterizes the progressive structural changes of the national economy.

## Tourism

International tourism is developing intensively. The favorable conditions created in our country are attracting an ever larger number of foreign tourists. In the first nine months of the year Bulgaria was visited by 4 million 288,000 foreigners, or 147,000 visitors more than in the respective period of 1978.

The results achieved in all fields of socioeconomic development of the country in the first nine months of 1979 are a good prerequisite for the successful fulfillment and overfulfillment of the basic assignments set by the party, and for increasing production and upgrading quality and effectiveness in all activities and sectors.

5003

CSO: 2200

BULGARIA

EDITORIAL URGES COMMUNISTS TO ENSURE FULFILLMENT OF PLAN

Sofia RABOTNICHESKO DELO in Bulgarian 10 Jan 80 p 1

[Editorial: "Principal Mandate for Communists, for All Workers"]

[Text] Working Bulgaria has entered upon the last year of the Seventh Five-Year Plan. The scaling of new heights lies ahead. The Central Committee of the Bulgarian Communist Party has appealed by letter to communists and all workers to fulfill the plan for the country's socioeconomic development in 1980-1981.

From the first hour, from the first day of the new year labor collectives --enterprise by enterprise, construction project by construction project, in agriculture, in servicing, at scientific and planning institutes--have begun the fulfillment of new tasks with new vigor. This period is extremely important for the country's socioeconomic development; it winds up the Seventh Five-Year Plan and starts the Eighth.

"The fulfillment of the complex and important tasks assigned by the 1980-1981 plan is in the hands of all the workers, in the hands of every economic organization, of every labor collective," the letter notes.

Both this year and next the country will continue to develop at a high and stable rate. National income will increase 5.7 percent in 1980 and 5.5 percent in 1981, while the social productivity of labor will increase 5.4 and 5.2 percent for the same years respectively, providing almost the entire increase in national income. Industrial output will grow 6.3 percent in 1980 and 6.1 percent in 1981. The efficient development of the country's foreign economic ties will continue. Bulgaria's participation in socialist economic integration will broaden and deepen. The country's trade will grow 7.5 percent in 1980 and about 7 percent in 1981.

Construction will be one of the most important fronts in the coming year also. The concentration process is being intensified, with a vast portion of capital investment channeled into the basic sectors of the economy (power supply, metallurgy, the chemical industry, machine-building). The construction of projects of such importance for the economy as the heavy

machine-building combines in Radomir and Ruse, the expansion of the Kozloduy atomic power station with 440 new megawatts, the reconstruction of the Lenin (near Pernik) and the Kremikovtsi metallurgical combines, the Glatsite MOK [copper concentration combine] etc. will continue. In 1980 79,500 housing units will be finished, and in 1981 80,400.

Major tasks will be accomplished in other sectors of the economy too. Energy sources will be developed at an overtaking rate. It is anticipated that 33 million tons of coal and 31.4 billion kWh of electric energy will be produced in 1980.

Counterplans are the basis for the development of socialist competition. Potential reserves must continually be discovered at every workplace, in every shop, at the construction project, in the design office and scientific institutes and incorporated in the counterplans.

Main efforts must be directed towards steady work for plan fulfillment in respect of all quality and physical indicators. An unrelenting campaign must be conducted for the economical and rational expenditure of raw and other materials, of fuels and energy.

The great tasks assigned in the plan can be accomplished by rapid adoption in the national economy of the latest scientific and technical breakthroughs, by the utilization of modern technologies, of new raw and other materials and energy resources. The intellectualization of material production and other spheres of the national economy has now become an important and immediate goal, a sure guarantee and sound basis for raising efficiency and quality in all spheres of the economy. This is a strategic course for a several-fold rise in labor productivity, for an increase in the national income, and for bringing up to world criteria the level of product output and the ability of those products to compete.

Extremely important factors are the development and adoption of electronization, microelectronization and automation of production processes and constant improvement in the socialist organization of labor.

The letter of the BCP Central Committee to communists and all workers in our country is an appeal for new enthusiasm and new initiatives. It is receiving wide response and support. At open party meetings the collectives of 11 basic enterprises from the Pazardzhik settlement system took up the letter of the BCP Central Committee. Their response was that they would overfulfill their total industrial production plans by 2 million leva. The results will be achieved on the basis of improvement in brigade organization and internal cost accounting, the adoption of scientific breakthroughs and of new products and production technologies, and by savings of labor, energy and materials.

Party organizations and committees, all communists face the task of leading their collectives to achieve high goals. They must decisively improve their political and organizational activity, intensifying their individual work with people. The tasks assigned in the Letter of the BCP Central Committee underlie this activity. This document must be studied with the greatest care in all party organizations and labor collectives and must serve as a guide for direct action.

Mobilizing the energies of workers to discover potential reserves must become the burden of socialist competition. The task facing everybody is to study thoroughly and make wide application of good experience and new technologies and to create the most favorable situation for the display of initiative and creativity.

The mandate now is--deeds, deeds and again deeds. This is what the letter of the BCP Central Committee to communists and all workers calls for.

On with shock work and the campaign for overfulfillment of the 1980-1981 plan!

6474  
CSO: 2200

CZECHOSLOVAKIA

CHANGES IN SOCIAL SECURITY LAW

Bratislava PRAVDA in Slovak 22 Dec 79 p 2

[Article by Alfonz Bednaric: Changes in Social Security"]

[Text] Last week, our highest legislative body, the CSSR Federal Assembly, approved the government-sponsored bill which revises and amends the law on social security.

It is said--and justly--that our social legislation, the system of our social security is one of the most advanced in the world. Due to the changes in social security, social benefits of the population increased by 15.5 percent, while other monetary incomes of citizens increased by 12.9 percent during the first 3 years of the Sixth Five-Year Plan. As the deputies stated in their speeches in the parliamentary committees, the latest changes in and amendments to the social security law would contribute particularly to the improvement of old-age benefits of cooperative farmers.

The most important change lies in the revision of the contribution of unified agricultural cooperatives to partial reimbursement of costs of social security benefits for cooperative farmers. This change is linked to the recently adopted principles of improved economic tools in the agricultural sector and will help extend the application of the principle of remuneration according to "individual merits" also to the old-age benefits of cooperative farmers. Beginning 1 January 1980, the unified agricultural cooperatives will have to remit [to the federal budget] 6-28 percent of the gross monthly incomes (depending upon the income brackets) of their members and workers--on the average 20.8 percent (as compared with 12.5 percent so far)--and will thus increase the retirement benefits essentially of all members of unified agricultural cooperatives. This will result in the unification of conditions for granting of retirement benefits and erase differences between cooperative farmers and other workers, blue-collar workers and employees. The contribution of JRD [unified agricultural cooperatives] to social security benefits for their members will correspond to the wage tax structure and will be calculated

from the total of all remuneration, premiums and remuneration in kind. The average increase in the retirement benefits of the cooperative farmer, computed from such a base and contribution paid, will amount to approximately Kcs 30 per month.

Another change in the social security law is an addition to the jobs listed in the first category. Among them is the operation of a cyclotron, experimental nuclear reactor and processing of asbestos.

The approved amendment to the social security law regulates the conditions under which the widows getting social security survivors benefits can be permanently employed. They are more liberal than has been the case so far.

Until now, the widows getting the survivors benefits could work only 180 days a year. According to the new arrangement, they can work in all key production sectors, that is in industry, agriculture and services (but also in health care) and some other sectors of the national economy throughout the year. In addition to their earnings, the widows will be entitled to the unchanged survivors benefits up to Kcs 1,100 per month. This advantage applies without any limitation (as to the place where the widow works), if widow's gross earnings do not exceed Kcs 800 per month. These advantages apply to the women getting independent widow's benefits or to the widows who, in addition to the survivors benefits, get also other than retirement benefits, only at age 57.

It is estimated that of the total number of 52,000 working women with old-age or survivors benefits approximately 70 percent have a part-time job and work 180 days during the calendar year. This percentage is relatively high. The new regulation presumes that 12,000 widows will again get permanent, full-time jobs. In addition, it is possible that the number of permanently employed women getting retirement benefits only will increase. In view of the existing labor shortage in our national economy, it is a source of labor supply which we must not overlook.

The above amendments and changes in the social security law eliminate the difference in the eligibility for social security benefits despite continued employment between the women getting either survivors benefits only or survivors and retirements benefits and other retired people.

Of the total number of 3.7 million pensioners approximately 800,000 or 20 percent continue to work in our national economy today. Many of them work in their previous places of work. According to the existing regulations, everybody upon reaching the age at which he became eligible for the retirement benefits had to abandon his permanent employment, although he wanted to continue in it, and get a new job as a retired person. It was frequently only a formality. The new regulation discards this formalism. The principle according to which the retirement benefits were

computed from the total of gross earnings in 10 (5) years preceding the year in which the person retired has not been revised in the following way: the retirement benefits are calculated (provided that the pensioner continues to work) from the average monthly income during the years preceding the day on which the retirement benefits were granted to him.

Although the amendments to and changes in the social security law are not big, they are nevertheless important for certain groups of retired people. They represent an asset both for them and the national economy.

10501

CSO: 2400

## CZECHOSLOVAKIA

### UNIVERSITY CONTRIBUTION TO INDUSTRY DISCUSSED

Prague HOSPODARSKE NOVINY in Czech 21 Dec 79 p 9

[Article by Dr V. Balek, CSc., CSR Ministry of Education]

[Text] The active pursuit of science by educators and students is a pre-requisite for attaining the full educational goals of universities. On one hand scientific inquiry has great influence on the quality of teaching and education of future graduates, on the other it contributes greatly to solving specific scientific and technical problems of the national economy and society.

#### The Scientific and Research Potential

An important part of the scientific and research potential of the republic, encompassing practically all scientific, technical, economic and cultural disciplines, is concentrated in CSR universities. They employ 626 university professors and 2064 docents and more than 3500 scientific and research workers are engaged primarily in scientific and research pursuits. Almost 15,000 students (roughly 20 percent of their overall number) participate in these activities in scientific interest groups.

In the years 1976 to 1980 the scientific and research activities conducted by universities focused on solving important tasks contained in the state plan for the development of science and technology. In 1978, 53.4 percent of the scientific research capacity of the universities were devoted to solving the tasks of the state basic research plan (be it in the field of natural, agricultural, medical or social sciences) 19.8 percent were devoted to the tasks of the state plan for technical development and 4.2 percent to tasks of applied economic research. In 1978, 16.5 percent of the overall capacity of CSR universities was devoted to research tasks of applied economic research solving research tasks included in departmental plans in the field of public health, agriculture and food or in the field of education and training. The remaining 6.1 percent of the research capacity of universities was spent on scientific research involving departmental tasks whose results frequently constitute the basis for future tasks of the state plan for science and technology.

CSR universities are engaged in finding solutions to almost 4000 partial tasks and research stages of the state plan for science and technology, coordinating almost 100 principal tasks contained in the state basic research, technical, development and economic study plan on a state-wide scale. At the same time they participate meaningfully in preparing and implementing developmental plans of the Czechoslovak educational and training system; universities work on these problems primarily by participating in the implementation of the plan of departmental research tasks in the field of schooling.

Urgent needs of the national economy are reflected in the activity of universities directly in the form of problem-solving on the basis of contractual agreements with production organizations. Many of the results of research projects undertaken by universities constitute an important economic contribution to our national economy. To cite some examples:

For use in industry....

At Electropcerelan Louny, a new method of drying ceramic stock was introduced proposed by the Advanced School for Chemical Engineering in Prague, which shortened the drying time of ceramic stock for the production of high-voltage insulators from 24 days to 8 days. Production of dried pieces tripled and a relative saving of 5000 kWh power per day in the drying operation was achieved. It was this technology which made the building of a projected drying shed budgeted at Kcs 4 million redundant.

Technical measures proposed by the Advanced School of Metallurgy at Ostrava, designed to improve fuel combustion in two boilers of the Chvaletice thermal power plant, will enable the output of the power plant to be raised by 10 to 15 MW and to raise its efficiency by 2 percent with lesser quality fuel which represents a saving of 20,000 tons brown coal a year.

In 1977 to 1978 a saving of Kcs 144.5 million was achieved in the construction of the Prague subway by the application of methods for evaluating the movement of subterraneous waters proposed by the Advanced School for Technology in Brno. In the building construction industry a Kcs 14 million saving was achieved by the application of welded constructions in construction pits. The achievements of the Advanced School for Technology in Brno in the field of the technology of efficient electrochemical sources of power represents an annual saving of 10 percent in the amount of Kcs 4 million of cadmium, a metal in short supply.

The multiple use method of organic flocculants in pretreating sludge proposed by the Czech Advanced School of Technology in Prague reduced the cost of industrial waste water purification. The annual saving achieved in the national enterprise Solo Susice alone amounted to Kcs 4.8 million.

The national enterprise Lachema in Brno introduced the production of a derivative of adamantane for the pharmaceutical industry according to a technology proposed by the Advanced School for Chemical Engineering in Prague. The product is made for export to Sweden. For 1979 a contract in the amount of Kcs 680,000 in hard currency has been concluded. The new method of adamantane production at the national enterprise Leciva Praha and the national enterprise Farmakon Olomouc yields Kcs 950,000 in foreign exchange for the national economy.

The research results conducted at the Advanced School of Metallurgy at Ostrava which developed the newest technology of large forgings for turbo-compressors working at reduced temperatures are expected to save labor and increase productivity. The new technology, expected to go on line in 1982, will yield an annual saving of from Kcs 5 to 7 million both to the producer (CKD Praha, Vitkovice Zelezarny a Strojirny) and the customer.

For use in agriculture....

The Ceske Budejovice Economic Operations College of the Advanced School of Agriculture in Prague proposed and tested in practice the use of high-yield crop plant strains suitable for cultivating in mountainous and highland locations. Cattle breeds feeding on these crops most efficiently were also proposed. Results of research studies designed to contribute to rationalization of agricultural production were taken over by the Kraj Agricultural Administration at Ceske Budejovice.

The Advanced School of Veterinary Medicine in Brno proposed a controlled reproduction method for animal husbandry, opening up the possibility of raising cattle and pigs in a continuous cycle. The method is based on the application of special preparations (imported hitherto from abroad but recently also produced in our country at the Advanced School of Chemical Engineering in Prague). The introduction of this method will raise animal nutrition because groups of animals of like age have analogous nutritional requirements, raise the profitability of cattle and pig raising and reduce the requirement for manual work. The method is currently being tested in selected agricultural enterprises in the South Moravia kraj.

For use in medicine....

The results of medical, biological and pharmaceutical studies are reflected in the prevention and therapy of socially important diseases. The results of studies conducted at the Medical School of Charles University in Prague and the J. E. Purkyne University in Brno represent advances in prevention, diagnosis and therapy. As an example, a method was discovered enabling the early diagnosis of epilepsy and a very simple test was developed by which the potential of various substances and drugs to cause defects in unborn infants in the early pregnancy can be assessed.

The modern inhalation anesthetic Anecotan which was hitherto imported found application in anesthesiology, obstetrics, stomatology, in first aid and the painless transport of sick and injured people. The Advanced School of Chemical Engineering in Prague found an original method of preparing this substance which is already in production at the national enterprise Leciva Dolni Meholupy.

#### The Common Good

New instruments developed at CSR universities are replacing imported products. For example, the sensor for measuring low partial pressures in water and gases proposed by the J. E. Purkyne University in Brno is being produced since 1978 by the national enterprise Tesla Roznov for all CEMA countries. The geoacoustic apparatus developed at the Advanced School for Metallurgy in Ostrava is part of the type series of geophysical instruments of enterprises for international cooperation CEMA INTERGEOTECHNIKA. Similar equipment, used in detecting land slide surfaces and the quick determination of stability of landslide-prone areas, has not been produced in CEMA countries before.

The 248 patents applied for in 1978 also testify to the successful scientific research conducted at CSR universities. In the CSR Ministry of Education alone their profit to society amounted to Kcs 6.664 billion. In order to utilize a number of inventions licensing agreements were concluded with foreign organizations. Within the framework of the guidelines set for research, Czechoslovak universities concentrate on the most urgent tasks aimed at conserving energy and material, improving production and resolving nutritional and health problems of the population. This is also the thrust of the CSR Ministry of Education in its preparation of the state plan for the development of science and technology for the next five-year plan. At the same time universities are being encouraged to increase the quality and efficiency of their own scientific research.

Central laboratories equipped with the most advanced equipment are being established which are expected to be used to full capacity. Individual universities and other research institutes and development base have agreed to pool their investments and foreign exchange resources in some cases and have purchased advanced equipment which is thereby well utilized by both the universities and departmental institutes. This is a solution aimed at solving the problem of modernization of the scientific equipment in universities to prevent them from falling behind the world standard.

During the Sixth Five-Year Plan the groundwork was also laid for gradually establishing communications between study and information work places in universities with departmental information centers in the CSSR.

This higher form of cooperation will raise the quality of the preparatory work to solve research tasks, accelerate the work process and also promptly inform production and developmental organizations about the results of scientific research carried on in universities. The joint scientific research facilities of the universities, the Czechoslovak Academy of Sciences and possibly other sectors offer ample opportunities for using instruments and improving research at universities. The Advanced School for Chemical Engineering in Prague has had good experience with this form of cooperation and the joint laboratory for silicate technology already has been operating successfully for several years. Joint research facilities were similarly established by the Advanced School of Metallurgy at Ostrava, the Vítkovice Iron and Engineering Works and in Pilsen by the Advanced Engineering and Electrotechnical School with the o.p. (sectoral enterprise) Skoda. Such institutions make it possible to comprehensively and professionally solve practical scientific problems.

Our universities are also searching for new forms of international cooperation. Gradually, selected scientific research tasks which are of interest to all involved partners are being solved by joint effort.

8664

CSO: 2400

CSR 1980 CROP PRODUCTION TARGETS LISTED

Prague RUDE PRAVO in Czech 21 Dec 79 p 5

[Article by Jaroslav Horky, staff member of the Ministry of Agriculture and Food CSR: "Economic Policy, Toward Targets in Crop Production--Already in the Coming Year To Reach the Desired Turnover"]

[Text] The targets of the plan for crop production derive from the conclusions of the 15th CPCZ Congress and the 13th Plenum of the Central Committee, whose goal is gradually to ensure self-sufficiency in the production of foodstuffs. All the political and technical-organizational measures are directed so that through the successful solution of these tasks an excess of crop production will be achieved. In 1979 varied results were achieved in crop production in the CSR. The failure to fulfill the gross crop production was shared mostly among the production of cereals, winter beets, fruits, vegetables, and flax, and this resulted from the extreme weather conditions. Gross agricultural production was fulfilled only to 92.5 percent.

The differentiation in the results achieved in crop production in the past year, mostly as a result of the lower production of cereals, also gives a different base for the fulfillment of the challenging tasks for 1980.

A Challenging Target

To guarantee the challenging targets the starting base was already partially created in the fall of 1979 when the sowing of winter cereals was carried out in the majority of agricultural enterprises in a first-rate manner and within the optimal agrotechnical time periods. Clearer progress was achieved primarily in the expanding of the area of winter barley, of which altogether 68,987 hectares were sown, i.e., 20,466 hectares more than in 1978; and also winter beets of which the sown area is 10,566 hectares greater than was realized in 1978; and amounts altogether to 65,900 hectares.

In cereals, which together with the production of bulk seeds remain the basic prerequisites for the proportional development of livestock production, it is necessary to achieve an average yield of 4.13 tons per hectare with an overall production of 7,400,000 tons. For the fulfillment of this task, the prerequisites were already created in the fall and in a very well varied composition.

In 1980 the basic production of cereals will also be oriented toward quality. Primarily, we are striving in winter wheat to achieve a higher range of gluten above 23 percent. In leguminous plants, the targets are extraordinarily demanding. Production is supposed to reach 180,000 tons, i.e., more than 225 percent greater than was realized in 1979. Examples of the leading agricultural enterprises such as the JZD [united agricultural cooperative] Vrbatky, in the district Prostejov, which reaped 6.11 tons per hectare; the Semenarsky State Farm Bezno, in the Mlada Boleslav district, 4.05 tons of peas per hectare; the JZD Bernartice in the Sumperk district 3.38 tons per hectare. In beans and others, it appears that it is possible to achieve the successful cultivation of leguminous vegetables also on a large scale by comprehensive agrotechnical and harvesting management. We expect that the employees of the Experimental and Improvement Institute for Technical Crops and Milling in Sumperk will fully activate the best workers who will be in constant contact with the critical agricultural enterprises and will positively influence this demanding sector of crop production with the newest information for the fulfillment of these demanding tasks.

Highly demanding tasks exist in the area of ensuring the production of winter beets. It is supposed to reach 130,000 tons, i.e., in comparison with the results of this year 209 percent. The basic conditions for the fulfillment were created by the sowing in optimal agrotechnical time periods to the end of August on enlarged sowing areas of a total area of 65,800 hectares.

#### Attention on Root Crops

It is necessary to devote continuing and constant attention to ensuring the targets in the production of sugar beets and potatoes. The goal to produce 6,400,000 tons of sugar beets represents an increase against the results of 1979 of 110.1 percent with the reaching of an average yield of 41.03 tons per hectare. The results achieved in the past year on the basis of the "Iampol Prostejov Challenge" show that until now there have also been significant reserves in this area, as is numerically expressed by the examples of the agricultural enterprises: the JZD Ivanovice, in the Prostejov district, on an area of 1,110 hectares achieved a production of 43 tons per hectare and 5.4 tons of pure sugar per hectare; the JZD Tovacov, in the Prerov district, produced an average of 42.8 tons per hectare on an area of 430 hectares; and the JZD Redhost, in the Litomerice district, achieved a yield of 42.8 tons per hectare of sugar beets on an area of 425 hectares.

The production of potatoes, for consumption as well as industry and planting remains constantly as regards volume but primarily as regards

quality, a very sensitive sector of crop production. In 1980 it is supposed to reach 1,130,000 tons, i.e., in essence the result of 1979. The focus of the work is oriented toward clearer concentration of production of selected agricultural enterprises, toward a broadening of specialization of production according to the exploitation directives and above all toward the substantial raising of the quality of potatoes for consumption. A sufficient quantity of planting potatoes are available to guarantee these targets.

#### Care for Bulk Feeds

The conclusions of the 13th Plenum of the CPCZ Central Committee established guarantees for the further gradual broadening of the scope of perennial fodder plants to 17 to 18 percent of the cultivated lands, intermediate crops to 10 to 12 percent, and structural changes to the benefit of alfalfa, red clover, and the most efficient feeds from root crops with a goal of ensuring an even feed balance.

The production of bulk feeds should agree with the planned growth of fattened beef cattle, which is supposed to increase 102.7 percent against the presupposed fulfillment in this year, and the production of milk 102.8 percent.

Feed crops are expanding at the expense of annual fodder crops. In the structure of the sowing areas, new efficient species of hybrid crops are being used to a greater degree. In the conditions of extreme mountain regions we are counting to a greater extent upon the broadening of hay sowings at the expense of corn ensilage, which does not give plant yields or the needed quality there.

Also, production of summer and winter intermediate crops will be oriented to more efficient and quality species, by which an increase of yield per hectare and the content of nutrients will be achieved. In the intensification of the production of perennial fodder plants, the effort will be chiefly directed toward higher use of the yield potential of clovers. Sufficient lowering of the area of double plantings for cereals will be one of the rationalizing measures for managing the sowing of clovers and for the lowering of plowing under the areas of perennial fodder plants.

With the increase of sowing areas of intermediate crops at least by 11 percent of the cultivated land, an improvement of the species and variety of composition to the benefit of efficient feed crops will also be obtained. In planning the production of bulk feeds the use of computation techniques was also counted upon for establishing the optimal proportions of the protein and carbohydrate feeds.

The ensuring of supplies of quality seed grain and its efficient variety is the limiting factor in the further development of the feed base. The VHJ [economic production unit] Oseva stands before the highly demanding task in conjunction with the OZS [district agricultural administration] and selected agricultural enterprises of ensuring the further concentration of the production of seed grain, the rapid spreading of the breeding in meadow clover, alfalfa, sugar beets, feed beets, feed carrots, turnip crops, grasses, and colored clovers.

## More Concerning Fruit and Vegetables

Given the very challenging targets, we are also counting upon the tempo of growth in vegetables where 500,000 tons should be purchased, i.e., 113.5 percent compared to the results of 1979; and in fruits 220,000 tons, i.e., 127.6 percent compared to this year.

In the fruit industry it is a question of a comprehensive guarantee of the projected targets with an aim of fulfilling the planned planting of intensive fruit orchards in the sixth five-year period on an area of 4,000 hectares. In 1980, an area of 925 hectares remains to be planted.

In order to insure intensive plantings, measures were taken for the production of breeding nurseries. The unfavorable climatic conditions in 1979 did not create the possibility for fully covering the total needs for fruit breeding in 1980. As a result of this, the planting of specialized fruit agricultural enterprises will be regulated and only then will the needs of the small growers be gradually covered.

The production of vegetables is a significant sector. We consider a successful solution of this problem as one of the most essential and most challenging targets; not only when the guaranteeing of market production is concerned but also in respect to the comprehensive use of all vegetables. In 1980 the market production is set as an orienting index of the economic plan of the department which is specified even for individual agricultural enterprises also in critical varieties of vegetables (tomatoes, peppers, cauliflower, cabbage, onions, garlic, gherkin cucumbers, and early vegetables). Also in the market production of fruits obligatory goals for the production of critical varieties have been established (apples, cherries, and apricots). A series of shortcomings, which occurred in 1979 especially in the area of purchases, must be carefully analyzed in the course of the winter period for the improvement of overall situation in supply-demand relations.

9329  
CSO: 2400

ERRATUM: In JPRS 74858, 3 January 1980 No 1968 of this series on pp 14, 15 please make the following corrections: paragraph 2 line 1 change 1,055 to read 2,055; paragraph 2 line 4 change 350 to read 330 and line 5 change physically to worn out; and in the last paragraph change in line 6, 30 percent to read 8.5 percent.

GERMAN DEMOCRATIC REPUBLIC

BRIEFS

**REDUCTION IN PESTICIDE USE**--In comparison with past years, according to East Berlin NEUE DEUTSCHE BAUERNZEITUNG [Vol 21 No 2, 11 Jan 80 pp 8-9], GDR agriculture in 1979 has made noticeable cutbacks in the use of chemical plant protection products. Whereas in the past, large crop areas were often indiscriminately sprayed with pesticides, even when the appearance of destructive pests was not a cause for alarm, in 1979 the use of such agents was, for the first time, made contingent on an actual proven above-average pest infection. The reasons for this are not only the increasing regard for environmental protection but also economic considerations. In recent years the expenditures for chemical plant protection have far exceeded the increase in yield gained thereby. [Text] [Bonn IWE-TAGESDIENST in German No 10, 17 Jan 80 p 2]

**GDR-ETHIOPIAN SHIPPING AGREEMENT**--Addis Ababa--A government agreement on cooperation in merchant shipping was signed by the GDR and Ethiopia in Addis Ababa today (Friday). The agreement was signed by Dr Heinz Rentner, GDR deputy minister of transport, and for Ethiopia (Ephrem Assen), state secretary in the Ministry for Transport and Communications. [Text] [East Berlin ADN International Service in German 1733 GMT 18 Jan 80 LD]

**SELF-SUFFICIENCY IN FOODSTUFFS**--According to East Berlin Radio, the grain embargo imposed by the U.S. on the USSR following the entry of Soviet troops into Afghanistan has corroborated the GDR's agricultural policy. The fact that western countries, particularly the U.S., "are, to an increasing extent, seeking to exploit agricultural exports, as a means of exerting political and economic pressure, underscores the soundness of our agricultural policy, i.e., to increase constantly our own yields in foodstuffs, especially since the prices of agricultural products on the world markets have increased many times over." According to East Berlin Radio, the GDR meets its foodstuff requirements from its own agricultural production by 91.3 percent; furthermore, in the case of important products such as meat, milk, butter, and eggs, the supply is fully guaranteed from domestic production. East Berlin Radio also pointed out that, even taking into account the limited agricultural area of the GDR and the fluctuations in yields contingent on nature, the opportunities for increased agricultural yields are "still considerable." [Excerpt] [Bonn IWE-TAGESDIENST in German No 10, 17 Jan 80 p 17]

## GOALS, GUIDELINES OF ENERGY POLICY VIEWED

Budapest FIGYELO in Hungarian No 52, 26 Dec 79 p 4

[Article by Istvan Hasz: "The Role of the Energetics Concept"]

[Text] In accordance with CEMA's guiding principles for energy policy, the [Hungarian] government adopted at the end of 1978 a long term energy supply policy, and this is also taken into account by the Sixth Five-Year Plan. As it is well known, our goal is to significantly reduce the energy needs of the national economy, moderate the rate of growth of energy consumption, to gradually create the conditions for thrifty energy consumption, to expand the economical exploitation of domestic energy sources, and to spread secondary and tertiary production methods. For the sake of the development of the branches of energetics and the fulfillment of energy policy tasks, the production of the energy-related installations and devices which help save energy must be gradually increased.

### The Main Goals

Although economic incentives come first, the Ministry of Heavy Industry is also endeavoring to help achieve the long-range objectives of our energy policy by means of planning and -- depending on the need -- administrative measures. The ministry participates in the drafting of medium and short plans, various public measures, regulation relating to product turnover, price policy and concrete price measures.

The Ministry of Heavy Industry knows very well that the fulfillment of energy policy tasks must also be assisted with political and consciousness-forming means, making use of the various methods of propaganda, the mass communication media, and so on. At the very least, a partial elimination of the consumers' poor energy use habits may also be a significant source of energy savings, and this also requires, besides incentives, propaganda and persuasion.

Together with the relevant functional and sectorial co-authorities, the ministry of Heavy Industry collaborated in working out the energy supply and energetics investment tasks serving the above-mentioned objectives. The

central element of these tasks is thriftiness with both energy carriers and investment resources.

### The Guiding Principles

In harmony with the preliminary economic policy concepts of the Sixth Five-Year Plan, and anticipating the introduction of more resolute and more radical energy saving measures as well as an increase of the effectiveness of energy consumption, one must make sure that during the Sixth Five-Year Plan, the growth rate for energy consumption will not exceed 3 percent per year.

On the basis of the requirement of maximum and rational utilization of domestic energy sources, we are developing coal production by taking into account the coal wealth prospected, the manpower situation, and the technical development (mechanization) objectives. Since production opportunities are gradually decreasing in existing mines, this can be achieved only by putting new mines into service.

From the viewpoint of a secure energy supply, it is very important that the large energy-related constructions (in the time-frame of the Sixth Five-Year Plan, the machine units of the Nuclear Power Plant of Paks, and, at the appropriate dates, the new coal producing capacities) be available by the prescribed deadlines.

The supply of oil and oil products requires to maintain domestic oil production at the level of 2 million tons a year, which will demand further vigorous prospecting and exploitation activities.

In the future, we will continue to be able to cover an increasingly growing share of our oil and oil products needs only through imports. In 1980, we will import from the Soviet Union 8.5 million tons of oil and 2 million tons of oil products. In the long term contracts to be signed with the Soviet Union, we are endeavoring to maintain the level of oil shipments and to expand it depending on the possibilities. However, in order to cover our excess needs, we will also have to import oil to be paid in dollars. One of the central tasks of our energy saving activities is to keep these imports to a minimum.

During the time-frame of the Sixth Five-Year Plan, in the interest of meeting the needs for natural gas, we are reckoning throughout the entire period of the plan with an even (6 billion cubic meters per year) domestic production of a high calorific value.

On the basis of what we know at present, the amount of natural gas imported from the Soviet Union will probably increase to a small extent during the period 1981-1985.

Thus during the period of the Sixth Five-Year Plan, sources of natural gas will somewhat expand. On the consumer side, nevertheless, we reckon with a more modest increase of industrial and residential-communal natural gas consumption. The latter's quantitative source will be higher imports and the buffer gas regained from the power plants. There is also a need for underground storage capacities. According to our calculations, the 350,000 cubic meter/hour underground storage capacity available according to the plan in 1980 must be increased by 1985 to a capacity of about 680,000 cubic meter/hour.

Power plants based on hydrocarbons will naturally no longer be built during the period of the plan, and the growing needs for electric energy will be met by nuclear power plant, electricity imports, and coal.

Of course, the concepts listed above reflect only the results achieved until now in the preparatory work of the plan.

#### Structural Change

Our alignment with the circumstances of the world economy, on the basis of the above-mentioned principles, are comprehensively and convincingly shown by the planned changes in the structure of our energy sources for 1980-1985, according to the data of the table below:

	Breakdown in percent	
	1980	1985
Coal varieties	27.6	24.7
Hydrocarbons	63.4	59.3
oil	38.1	37.4
gas	25.7	21.9
Other nuclear energy	2.00	16.0
Energy sources, total	100.0	100.0
domestic sources	56.5	47.0
energy imports	43.6	53.0

Thus the most characteristic feature of the structural transformation of our energy sources during the next period is a reduction of the share of hydrocarbons and energy imports.

The share of coal varieties -- despite the fact that the quantity of sources available will increase to a small extent -- will nevertheless drop to some extent. Nuclear energy, however, will make its appearance among our energy sources and thanks to it, the share of direct imports within all energy sources will drop from 55.6 to 53 percent.

In the interest of achieving our long range energy policy objectives, the new phase of forecast preparatory work has also begun, which, stretching to the turn of the millennium and together with the concepts and alternatives for the development of the national economy, will reevaluate the country's energy needs and the sources that can be considered for covering these needs.

2153  
CSO: 150D

SUGAR BEET PROCESSING SUCCESSFULLY CONCLUDED

Budapest NEPSZABADSAG in Hungarian 19 Jan 80 p 1

[Text] Processing of sugar beets was completed by the middle of this week at all 12 sugar factories. A total of 3.9 million tons of sugar beets was delivered to the factories during the current season, and we have cause to be satisfied with quantity of sugar as well: A total of 470,000 tons of sugar was produced, 30,000 tons in excess of the plan.

Laszlo Nagy, managing director of the Sugar Industry Enterprises' Trust, says that the amount of sugar produced will permit uninterrupted domestic supply as well as some profitable export. This is due mainly to the fact that, similarly to last year, the quality of beets harvested was good and average yields increased also. In 1979, average yields amounted to 353 quintals per hectare as compared to 341 in 1978. An indicator of the success of the production is that it yielded 41.3 quintals of sugar per hectare in 1978 as compared to 41.6 quintals in 1979.

Favorable weather contributed to these results as did a further improvement in the traditionally good relations between growers and processors. Yet another factor was that the sugar factories for the first time paid for the beets on the basis of quality--sugar content--as well as quantity. Due to this double incentive, the producers received an average of 6 percent more for their beets than during the preceding year.

Having the factories begin processing the beets somewhat later than previously resulted in riper and more readily storable raw material. Both harvesting and delivery were well organized. The fact that the country's 12th sugar factory, the Hajdusagi Sugar Factory, went into production was also helpful. During its first operating season it processed 340,000 tons of sugar beets thereby reducing the total beet processing season to 110 days. When the factory begins working at full capacity next year, the season will be reduced to 100 days.

The factories have now begun their maintenance work. The area sown to sugar beets cannot be decreased this year, therefore the factories are contracting for beet growing on 110,000 hectares and will soon begin delivering seed to the growers.

CSO: 2500

IMPACT OF OPEC PETROLEUM PRICE POLICY ON POLISH IMPORTS DISCUSSED

Warsaw HANDEL ZAGRANICZNY in Polish No 9-10,1979 pp 5-9

[Article by Adam Owiazda: "Policy of the OPEC Countries in the Area of Establishing Prices on Crude Oil and Its Influence on Polish Imports"]

[Text] The price policy of the Organization of Petroleum Exporting Countries (OPEC) has for several years occupied a point of central interest not only for economists and politicians professionally dealing with these matters but also the public at large in perhaps every country in the world. The OPEC nations, which control approximately 60% of present proven world crude oil reserves, exert a decisive influence on pricing this raw material in the world market, and therefore directly influence the economic development rate in the majority of the world's countries which do not possess their own crude oil reserves and are thus forced to import crude.

There have been a great many various publications dealing with the role of OPEC in today's world.<sup>1</sup> Predominating in most of these studies are simplified descriptions and evaluations of the activities of this organization as a unique cartel, which has quite an easy time of it, since the individual oil importing countries either curry favor with OPEC or at least endeavor not to incur the ill will of this organization and its individual members. In some studies one also encounters the tendency to exaggerate (or, more rarely, to underrate) the role and unique economic power of OPEC which this organization exercises over the rest of the capitalist world (and not only the capitalist world). It is a more difficult matter, however, to answer the question of what OPEC is for its members. In general terms, up to 1973 this organization performed the function of a unique "moderator" of the demands of the individual member countries, which were demanding a greater share of the profits of foreign oil companies operating on their soil, as well as the establishment of higher prices on crude oil. OPEC made possible during this period the holding of "reasonable negotiations" between the oil companies and the governments of the individual member countries, and in addition created a forum within the framework of which the more conservative and pro-West OPEC governments could exert decisive influence on crude oil prices and production rate without risk of confrontation and conflict with the more radical members of this organization.<sup>2</sup>

One can also point to this as an explanation for the fact that up to 1974 crude oil prices were essentially frozen. In actuality, however, these prices, as a consequence of inflation and the rapidly-falling value of the U.S. dollar, were lower than at the beginning of the 1960's. For these same reasons the actual price of crude oil, in spite of the massive, four-fold price boost in 1974 as well as more moderate increases implemented by the OPEC countries in 1975-1978, was in 1978 only approximately 3 times the 1960 price level. The relatively moderate price policy of the OPEC nations in the period 1974-1978 proceeded primarily from the fact of a lack of agreement among the members of this organization on consistent maintenance of common and "more long-term" prices on crude oil. This moderate price policy of the oil producing countries did not derive so much from the very fact of existence of OPEC as from the disinclination of Saudi Arabia to implement more radical price increases on crude. Of all the OPEC members, Saudi Arabia alone can in practice compel — without soliciting the agreement of the other members of this organization — the holding of prices on raw crude oil at the level it demands. This is a result of the distinct preponderance of Saudi Arabia over the other OPEC nations, for Saudi Arabia controls approximately one third of the total crude oil production and export of the OPEC member nations as well as one fourth of the world's crude oil resources.<sup>3</sup>

The mechanism of establishing raw crude oil prices functioning within OPEC does not require that this organization "force" all its members rigorously to observe the common price adopted by the cartel. No OPEC country, however, desires a price decrease or even stabilization of raw crude oil prices, nor do any of the members seek to obtain additional revenues by increasing crude oil production and export; only Iraq has undertaken such attempts, and without much success. On the other hand, however, the relatively large "geographic dispersion" of occurrence of crude oil reserves and the diversity of grades of crude have caused a substantial fragmentation of the world crude market, which in turn promotes maintaining so-called protectionist areas, in which the effects of competition by other crude oil producers and exporters are practically unfelt. Venezuela, for example, is located fairly close to the United States, while the crude produced in Venezuela is "heavier" than the Arabian light crude from the Persian Gulf; the crude produced in the African countries is lighter than the standard "light Arabian" crude as regards content of certain components affecting its calorific value, etc. All these factors are reflected in the price of a specific grade of crude, as well as in the price prevailing in a specific local market (see figures in following table).

The next to most recent price increase on "light Arabian" crude, which the OPEC countries ratified at the OPEC conference in Geneva at the end of March of this year, caused a proportional price increase on other grades of crude as well. From 1 April to 1 July 1979 the per-barrel price on standard "light Arabian" crude was \$14.54, or 9% higher than the official price from January to the end of March 1979, and 5% higher than the price which, according to a previous OPEC decision in December 1978, was to go into effect on 1 April of this year.<sup>4</sup> In addition to the index price, which is not binding on the individual OPEC countries, so-called market

Official Raw Crude Oil Prices (December 1978-April 1979)

1 Wyszczególnienie (kraj i gatunekropy)	2 Grodziec 1978 r.		3 Stryjek 1979 r.		4 Kwarcik 1979 r.		5% wzrost w stos. do 1978 r.
	—	6 w dekametrach na baryłkę	—	—	Stryjek	Kwarcik	
Abu Dhabi	Zabum 40°	13,17	14,91	17,01	6,4	29,2	
	Maribor 39°	13,26	14,19	17,10	6,3	29,0	
Arabia S.	7 Lekka 31°	12,70	13,51	14,55	5,0	14,5	
	8 Aradis 31°	12,32	12,89	14,95	4,6	14,1	
	9 Cigalka 27°	12,82	12,51	13,64	4,1	13,5	
Irań	Lekka 34°	12,81	13,45	16,57	5,0	29,4	
	10 Sardziszylka 31°	12,49	13,06	16,04	4,6	28,4	
Irak	Kirkuk 36°	12,88	13,52	15,95	5,0	23,8	
	Borsuk 31°	12,66	13,29	15,70	5,0	24,0	
Kuwejt	— 31°	12,22	12,83	15,79	5,0	29,2	
Katar	Dukhan 40°	13,19	14,03	17,01	6,4	29,3	
	Maries 30°	13,00	13,77	16,85	5,9	29,6	
Algieria	11 Saharyjska 44°	14,10	16,80	18,55	5,0	31,8	
Libia	Berga 49°	13,85	14,69	18,25	6,1	31,8	
Nigeria	Lekka 37°	14,12	14,82	18,53	5,0	31,2	
Indonezja	Minas 35°	13,85	13,90	15,65	2,6	15,5	
Wenezuela	Oficina 34°	13,99	14,69	17,21	5,0	23,9	

Key:

1. Producing country and grade of crude	6. In dollars per barrel
2. December 1978	7. Light
3. January 1979	8. Medium
4. April 1979	9. Heavy
5. Percentage growth over 1978	10. Medium heavy
	11. Saharan

Source: PETROLEUM ECONOMIST, No 5, 1979, page 182

premiums were also collected in this period up to 1 July, the amount of which was dependent on conditions prevailing in the market as well as in the exporter country.

The most recent crude oil price increase in turn, agreed upon at the meeting of OPEC oil ministers in Geneva on 28 June 1979, calls for introduction of a dual price system effective 1 July of this year — a minimum index price of \$18.00 for a barrel of standard "light Arabian" crude, as well as a maximum price for the highest grades of crude, at \$23.50 a barrel. This signifies on the average a more than 50% price boost since the beginning of this year and a more than 30% increase in relation to the current official price.<sup>5</sup> The price policy of the OPEC nations implemented up to the present time has led to a period never before encountered in history, in which nobody can precisely specify the official price of raw crude oil. As follows from the above figures, in the period from 1 January to 30 March 1979 there was a price increase in the order of 147 for the cheapest grades of crude, while the price increase was approximately 32%

for the most expensive grades. Individual OPEC countries, however, were charging during this period an additional "market premium" of from 2 to 5 dollars a barrel of crude. The most recent increase in crude oil prices also establishes collection of such supplementary payments, a price increase which is to become effective at the end of September of this year. Additional measures aimed at "uniform crude prices" are to be determined at the next OPEC meeting, in September.

It is highly probable that the new crude oil price structure, effective 1 July of this year, will not be maintained long. Essentially everything depends on the magnitude of demand for crude oil from the OPEC countries or on the economic activities of the major importers of crude oil -- the countries grouped in OECD, as well as progress made in limiting consumption of crude oil and its replacement by other sources of energy. On the other hand, as far as supply is concerned, the future price of crude oil depends on the production level agreed upon by the OPEC nations, especially production in Saudi Arabia and Iran.

The economic activity of the Western nations continues to be sluggish. The April crude oil price increase exerted an even more hindering effect. There are serious apprehensions that following the most recent, June price increase there will be another recession in many Western countries. It is estimated, for example, that in the United States there will be a rise in the rate of inflation and unemployment. It is predicted that 250,000 Americans will lose their jobs by the end of this year, with an additional 550,000 joining the ranks of the unemployed next year. On the other hand the inflation rate will rise by at least 1 percentage point, with a 1% drop in the annual national income growth rate.<sup>6</sup> Of course one can assume that the occurring price increases, alongside certain measures undertaken by the crude oil importing nations to reduce consumption, will eventually cause a drop in demand and stabilization of prices. The results of the most recent, fifth "summit conference" of the seven most economically developed Western nations, held in Tokyo at the end of June, do not instill optimism. This means that the Western nations will continue to be unable effectively to oppose OPEC price policy implemented up to the present time and therefore will be compelled to accept the prices established by the "petroleum cartel".<sup>7</sup>

Assuming that in individual Western countries there will not occur a substantial economic upswing and that the process of improving efficiency of consumption of crude oil will not be accelerated, the question arises as to what the level of crude oil production in the OPEC countries should be. The production decline which took place in Iran in the first quarter of this year was partially compensated by a boost in crude oil production in Saudi Arabia to 9.5 million barrels a day, as compared with the previously-planned Saudi daily production figure of 8.5 million barrels. If crude oil production in the OPEC countries is maintained at the level achieved in February of this year -- which is by no means a certainty -- total OPEC production this year will run at about 30.8 million barrels a day, in comparison with 31.4 million b/d in 1977 and 29.9 million in 1978.<sup>8</sup>

It is difficult to say precisely whether this level of crude oil production in the OPEC countries will be sufficient to satisfy current market requirements. There have been various forecasts on this score, which figure growth or stabilization of crude oil production in the OPEC countries on the basis of an anticipated "inflow" of crude oil from the North Sea and from Mexico.<sup>9</sup> As an example, forecasts by experts at the International Energy Agency assume that demand for crude oil from the OPEC nations will run from 42 to 48 million barrels a day in 1985, while crude oil production in those countries will range from 36 to 38 million b/d.<sup>10</sup> If there does not occur the anticipated inflow of crude oil from Mexico and from other countries which are not members of OPEC, the price on this raw material may -- beginning in October of this year -- rise to a level of 27-30 dollars a barrel.

The price which the market will be able to bear will depend, it would seem, to a considerable degree on the level of production and export of crude oil from Saudi Arabia. As that country's oil minister, Sheik Yamani, has emphasized time and again, Saudi Arabia could easily increase its daily crude oil production from 8.5 million barrels (figures for April of this year) to 14.5 million barrels. That country, however, would like to extend the "longevity" of its oil wealth and therefore also encourages programs to achieve more economical crude oil consumption in the Western nations and thus the degree of those nations' dependence on import of crude oil. In the opinion of Minister Yamani, "it is the consumers who change the situation in the crude oil market." They should reduce their current oil consumption and stop stockpiling additional strategic reserves of this fuel to protect themselves against a repetition of the crisis which recently took place in Iran. Otherwise they must be prepared for another substantial increase in the price of crude oil.<sup>11</sup>

A certain paradox in present-day international relations is the fact that one country, that is, Saudi Arabia in this instance, decides whether and to what extent individual Western countries are implementing "sufficiently effective" programs to achieve more efficient and economical oil consumption and, on the basis of this evaluation, then uses its influence within OPEC to steer that organization's decision on the next increase in the price of crude oil or -- which is little probable in the immediate future -- to freeze the price of crude oil for a certain period of time. The Western world as well as other countries dependent on import of crude oil must choose between two alternatives: they must either cut back substantially on consumption of crude oil or face another increase in the price of this raw material.

We must note, however, that individual OPEC countries do not wish to restrain demand for their crude oil, and therefore they endeavor to work out and introduce a "suitable price," as it were, which would guarantee them higher or at least relatively steady revenues from the export of crude oil, and which at the same time would not cause a decline in demand for crude oil. The OPEC countries, as well as the majority of other crude oil exporters, have acknowledged the mechanism of supply and demand as a suitable regulator of prices only in a situation where demand has "pushed"

prices upward. In turn, "escalating" crude oil prices, the producers and exporters of this fuel are bringing closer the time when competing sources of energy will appear on the market -- fuel produced from coal or natural gas, for example. From a technical standpoint this is already possible today, but at the present level of crude oil prices it is not yet profitable (it costs approximately \$24.00 to produce a barrel of crude oil from hard coal, while the cost of producing a barrel of crude oil in the Near East is barely 25 cents, \$2.50 in Mexico and approximately \$6.00 in the North Sea.

Spokesmen of such countries as Iraq, Libya and Algeria, whose only concern is in finding ways and means of boosting the price of crude oil, are winning over fewer and fewer followers in OPEC. The majority of OPEC countries are endeavoring to link their price policy to the effects which increased prices have on the world economy, as well as the undesirable effects on the level of their own revenues and rate of development of their national economies. According OECD figures, OPEC petrodollar surpluses have grown to more than 60 billion dollars. The surplus amounted to 19 billion dollars in 1978 alone. One should bear in mind, however, that in 1978 only seven OPEC countries had budget surpluses, namely Saudi Arabia, Kuwait, the United Arab Emirates, Iran, Iraq, Libya, and Qatar -- totaling 30 billion dollars. On the other hand the six other OPEC member countries had a balance of payments deficit in the order of 10 billion dollars, that is, precisely the amount of their surplus in 1974.<sup>12</sup>

It remains an open question whether the OPEC countries will be able through regular crude oil price increases to protect their diminishing currency reserves and their real income generated from the export of crude oil, which is shrinking year by year. If the OPEC countries raised the price of crude oil gradually, the world would probably not suffer particularly from these increases; it would not lead to an inflationary rise in the prices of other industrial commodities, resulting in relative stability in the real income of the OPEC countries. The massive fourfold boost in the price of crude oil implemented in 1974 had the result that the Organization of Petroleum Exporting Countries altered the prevailing international economic order, but "at the same time itself became a prisoner of the circumstances which it had created."<sup>13</sup> At the present time a large percentage of the OPEC countries are unable to absorb or, most important, efficiently and reasonably utilize their enormous revenues from the export of crude oil (considerations of population, poorly developed infrastructure, etc.). This is another reason why such countries as Saudi Arabia, Kuwait and the United Arab Emirates, for example, do not desire to increase their crude oil production and export. They can do without their enormous revenues. Placing their capital surplus in Western banks, they in turn lose on the declining value of the dollar. On the other hand, the world could not live a single day without oil!

Many OPEC countries correctly assess the negative effects which crude oil price increases are having on the economy of the Western nations, on which the oil producing countries are heavily dependent, as well as the even greater negative effects on the economies of the Third World countries.

The Organization of Petroleum Exporting Countries doles out economic assistance to these countries in a form reminiscent of alms, giving a plittance of that which they take in with the aid of high crude oil prices.<sup>14</sup> Many OPEC countries also realize that they are spending their income too fast and irrationally, which does not promote harmonious development of their economies.

At this point the question arises as to whether establishment of a "suitable" price on crude oil, which is "optimal" from the standpoint of the interests of the OPEC countries and those of the rest of the world, would result in elimination of the above-mentioned phenomena and processes which make difficult the future development of the economies of the oil producing nations as well as the world economy. What does an "optimal" crude oil price for OPEC signify in this context? From the standpoint of economic theory an optimal price for the seller is a price which ensures maximalization of profits or, in the case of OPEC, where the cost of producing crude oil comprises an insignificant percentage of the price -- the optimal price would be one which would ensure maximization of income over an extended period into the future. Present OPEC price policy, however, would seem not to take into consideration income which the oil producing countries will generate in the future.

Obviously the OPEC countries must take into consideration many different factors when establishing a "further price", that is, a price to remain in effect for a longer period of time than has been the case up to the present. First of all, demand and changes in demand for crude oil from the OPEC countries under the effect of increased supply of crude oil from other, non-OPEC sources. Secondly, the status of their crude oil reserves, the longevity of which depends directly on the level of prices -- the higher the price, the less production required to assure a relatively steady flow of revenues. A third factor, which also affects the level of common crude oil prices, is the fact that the OPEC membership consists of countries which differ from one another, which have different goals and which pursue their own foreign and domestic policy. The economies of the OPEC member countries are operating under differing conditions, these countries have differing per capita incomes, and they utilize their oil wealth differently.

A detailed analysis by R. Pindyck indicated that in 1977 the optimal price of crude oil for OPEC was \$12.50 to \$13.00 a barrel, or somewhat below the world crude oil price level at that time. In the opinion of this author the price of crude oil should rise by only 2% annually in the course of the next 10 years. A price rise of greater than 2% annually could result in greater losses as a consequence of a diminishing volume of sales than would be gained by additional revenues generated by more massive price boosts.<sup>15</sup> On the other hand, with the assumption that the inflation rate on a world scale is running at 6% annually, and the decline in the value of the U.S. dollar is running at a rate of approximately 4% annually, the OPEC nations should not boost the price of crude oil by more than 10% annually, or by \$1.40 a barrel.

Recapitulating the above remarks, we should state that up to the present time the OPEC countries do not really know what "futuristic" policy they should implement in the area of establishing crude oil prices. Of course none of the OPEC countries is seeking to reduce prices on crude oil. On the other hand the rest of the world does not presently have any economic incentives at its disposal or, put in another way, possesses no economic or political means of coercion which would move the OPEC countries to reduce crude oil prices. It is a different matter altogether that as regards observing a so-called common price, OPEC has never achieved anything concrete for all its members other than in the Near East and Africa. Also, at the present time such countries as Venezuela, Indonesia and some African countries differently interpret OPEC decisions on a common crude oil price. Essentially OPEC decisions are binding only on countries situated on the Persian Gulf.<sup>16</sup> Many Western economists express, in connection with the small role of the Organization of Petroleum Exporting Countries in the area of establishment and, primarily, enforcement of observance of common prices, the opinion that "if OPEC did not exist or were to disintegrate for some reason, it would be in the interest of the entire industrialized world to establish such an organization."<sup>17</sup>

The fact is that the OPEC Secretariat has little influence on decision-making in respect to prices on individual grades of crude. These decisions remain in the hands of the governments of the individual member countries. From this follows the logical conclusion that the oil importing countries should elaborate and apply in practice a so-called individual approach to the particular OPEC member countries and endeavor through bilateral negotiations to secure for themselves adequate deliveries of oil at a price specified in advance for a given period of time. If, however, OPEC wishes to retain the mechanism of establishment of prices on crude oil -- either on such a narrow scope as at the present time or to a considerably greater degree at the cost of limiting the independence of the member countries -- the OPEC members must appropriately divide production quotas among themselves. In other words, with the present level of prices, some of the OPEC countries will be compelled significantly to limit crude oil production.

This latter solution, however, would seem to be little probable, for in the last several years the countries and peoples covered by the OPEC organization have become significantly dependent on the "economic strength of the rest of the world," and particularly on the "health" of the economies of certain Western nations. Foreign investments of certain of the OPEC countries, Saudi Arabia, for example, have increased from 20 billion dollars in 1974 to approximately 180 billion dollars in 1978, while Kuwait's foreign investments have increased from 10 billion dollars in 1974 to 100 billion dollars in 1978. "The security of these investments, as some Western economists emphasize, depends on international stability... etc, and therefore the OPEC countries should trade their oil intelligently and cautiously in a growing competitive atmosphere."<sup>18</sup>

This latter factor may cause in the future a certain moderation in the price policy of the OPEC countries. Attempts to break up this organization or to cause its disintegration by attempting to exploit those conflicts which exist between the organization's individual members will certainly not lead to a moderation of policy, for as long as the existence of this cartel remains profitable to its members, they will not allow it to dissolve. The only realistic way to weaken the influence of the oil cartel, or in this instance the Organization of Petroleum Exporting Countries, is to increase world oil production capacity (this latter term signifies the difference between what can be produced and that quantity of crude oil which is actually produced and utilized). An increase in world -- "non-OPEC" -- oil production capacity by 4 or 5 million barrels a day would exert an appreciable influence on the crude oil prices established by OPEC. An increase in supply of crude on the world market can be achieved not only by additional capital outlays, expansion of existing production facilities, intensification of exploration and exploitation of new oil deposits. This objective can also be attained by not so much a decrease in consumption as increased economy and further improvement in efficiency of oil consumption, as well as more extensive utilization of other energy sources than up to the present time.

#### [Adverse Impact on Poland]

OPEC crude oil price boosts in the last 5 years have also had an adverse effect on Polish fuel and energy imports. Processing industry, which is rapidly developing and expanding in this country, has demanded increased imports of raw materials and other materials, among which fuels and energy as well as raw materials for light industry and the chemical industry have comprised our main import item. In the last 5 years we have spent 58 billion foreign exchange zlotys on purchase of fuels and energy, comprising 43% of our total imports, and these imports represented more than 18% of our industry's total demand for raw materials, fuels and other materials.<sup>19</sup> Crude oil price increases also had a direct impact on our trade balance, causing, among other things, a lessening of the economic activity of certain Western countries and thus making export of our goods to payments area II more difficult.

While in 1976 outlays for imports exceeded export revenues in our foreign trade by 9,470.6 million foreign exchange zlotys, last year our trade deficit decreased to 6,253.4 million foreign exchange zlotys (in current prices). Figures for the first quarter of the current year indicate exports exceeding imports. Securement of a continuing preponderance of exports over imports requires an increase in above-target exports by 1 billion foreign exchange zlotys to payments area II in the current year.<sup>20</sup> In the present situation, taking into consideration the recent close to 30% boost in crude oil prices, we can state that this is a practically impossible task.

In turn, in order to cover our present crude oil requirements, we must increase exports to payments area II by an average of 15% annually. Last year we were able to boost exports by 5.3%, of which 4.1% of the increase in

our exports in value terms was due to price increases. This year, however (figures for the first quarter), there has occurred a 20% decline in our exports to economically highly developed capitalist countries.<sup>21</sup>

It is true that in 1978 our fuel and energy imports from capitalist countries declined by 0.6% from 1977, but on the other hand import of these commodities from socialist countries rose from 16.2% of our total imports in value terms in 1977 to 18.6% in 1978.<sup>22</sup> One can expect, however, in coming years a substantial increase in fuel and energy imports from capitalist countries, with stabilization of fuel and energy imports from socialist countries, for we cannot meet all our oil requirements, which are growing steadily, with increased purchases from the Soviet Union. This is due simply to that country's limited production capabilities. For comparison we might state that in 1978 crude oil production in the Soviet Union totaled 4,204,200,000 barrels, while production in the OPEC countries for that same year totaled 10,913,204,000 barrels.<sup>23</sup> While the USSR, however, consumes an enormous quantity of its crude oil production for its own requirements, precisely the opposite is true of the OPEC nations.

We should also emphasize the fact that export of crude oil and petroleum products from the USSR to the other CEMA member nations will reach a level of 400 million tons in 1976-1980, or an increase of 50% over the period 1971-1975. In 1979 alone Soviet export of crude oil and petroleum products will total 80 million tons, and prices on crude oil from the USSR -- at which it is sold to the CEMA member nations -- are approximately 25% below world prices.<sup>24</sup>

Beyond 1980, however, the Soviet Union will be unable fully to meet the crude oil requirements of the other CEMA nations, including Poland. According to several estimates, after 1980 the Soviet Union will earmark all its crude oil surplus for export solely to the CEMA nations, while due to an increase in domestic consumption, export of Soviet crude oil to capitalist countries will cease altogether after 1981.<sup>25</sup>

A fairly obvious conclusion follows from the above: only a further growth in our exports to payments area II will enable us in the future to meet our requirements in crude oil and petroleum products. At this point we can go one step further and state that this will be the case even independently (in a certain sense) of whether this will be export which is more or less profitable to us. Export of our hard coal, one of our principal commodities in export to payments area II, looks as follows. Up to the end of 1978 we were getting approximately 600 kg of crude oil for one exported ton of coal, while the figure declined to approximately 400 kg of crude oil from January 1979 to June 1979. The price relationship between hard coal and crude oil is continuing to worsen. Price changes in 1978 were disadvantageous to us. The price of coal rose slightly (by an average of approximately 4.6%), while prices on crude oil and natural gas increased substantially (by 15.1 and 17.9% respectively). In trade with capitalist countries the relationship between the price of coal and the price of crude improved somewhat (by 0.5%), but crude oil prices continued to be higher than coal prices.<sup>26</sup> This does not mean that we should substantially cut back or even stop

exporting coal and reduce crude oil imports. This is impossible for many reasons (consumption habits, expanding motorization, etc). We should bear in mind that export of our hard coal is generating 1 billion dollars in revenues for us each year. In the present situation we cannot give up this income, since we shall be unable to place a greater quantity of manufactured goods in the market of the highly developed capitalist countries.

[Conclusion]

Until such time as nuclear power is more developed, our country -- just as the entire world -- will be unable to get along without oil to resolve the energy problem. This means that stable deliveries of crude oil and other fuels must be sought as follows:

by reducing oil consumption by means of more efficient utilization;

by reducing crude oil imports from OPEC countries, which would lead to a certain weakening of the position of that cartel and consequently to a moderation of the price policy implemented by that organization;

by becoming independent chiefly from a single source of crude oil supply, in order to diminish in this manner the probability of occurrence of interruptions in deliveries of crude in case of a crisis such as the recent crisis in Iran. In addition, greater diversification of our crude oil imports would also make possible a more flexible application of barter transaction policy. In practice this would mean that we could pay for crude oil imports from certain developing nations (for example, Mexico, which is not yet a member of OPEC) not necessarily with foreign exchange alone but also with Polish goods.

FOOTNOTES

1. Cf. I. D. Park, "OPEC and the Superpowers: An Interpretation," *COEXISTENCE*, No 1, 1976, pp 49-64; C. F. Erwin, "Myth, Oil and Politics: Introduction to the Political Economy of Petroleum," New York, 1977; J. Danilewski, "Organization of Petroleum Exporting Countries," *SPRAWY MIEDZYNARODOWE*, No 4, 1971; D. A. Rustow and J. F. Mugno, "OPEC, Success and Prospects," New York, 1976; plus a number of others.
2. A like view is expressed by E. Penrose, "OPEC's Importance in the World Oil Industry," *INTERNATIONAL AFFAIRS*, No 1, 1979, London, page 21.
3. In 1977, for example, Saudi oil production ran 9.2 million barrels a day (1 barrel represents approximately 159 liters, and 1 ton -- approximately 7 barrels), but maintained exports at a level of 8.8 million b/d. Corresponding figures for all 13 OPEC member countries were as follows: 31.2 and 28.8 million barrels a day. See E. Tucker, "OPEC Revenues and Balances," *PETROLEUM ECONOMIST*, No 7, 1978, page 285.

4. TRYBUNA LUDU, 28 March 1979.
5. TRYBUNA LUDU, 29 June 1979.
6. According to figures published in the 29 June 1979 issue of the WASHINGTON POST.
7. The results of the above-mentioned Tokyo "summit conference" were discussed by S. Albinowski, "Between Geneva and Tokyo," TRYBUNA LUDU, 2 July 1979.
8. "The Price the Market Will Bear," PETROLEUM ECONOMIST, No 5, 1979, page 183.
9. Prior to 1972 Mexican crude oil reserves were estimated at only 9.5 billion barrels; last year, according the official figures of Pemex, the Mexican enterprise engaged in production and refining of crude oil, reserves totaled approximately 50 billion barrels, while in an interview with Mexican President Lopez Portillo in September of last year by representatives of the foreign press, the figure mentioned was 200-300 billion barrels, which supposedly is closest to the current state of proven oil reserves in that country. According to estimates by U.S. experts, recoverable oil reserves in Mexico total as much as 700 billion barrels. For comparison, the oil reserves of Saudi Arabia, the largest oil exporter up to the present, total 150 billion barrels. Cf "Mexico, A Survey," THE ECONOMIST, 22 April 1978, and F. E. Niering, "Mexico, A New Force in World Oil," PETROLEUM ECONOMIST, No 3, 1979, pp 105-113.
10. E. S. Tucker, "OPEC in the Longer Term," Ibid., No 8, 1978, page 328.
11. See "Saudi Oil Policy, Between Genevas," THE ECONOMIST, 14 April 1979, page 81.
12. PROBLEMES ECONOMIQUES, No 1, 1979, quoted in PRESENTACJE, No 6, 1979, page 95.
13. See "If You Were OPEC You'd Worry Too," THE ECONOMIST, 1 April 1978.
14. I wrote at greater length on this subject in my article entitled "OPEC Economic Assistance to the World and the New International Economic Order," PRZEGLAD STOSUNKOW MIEDZYNARODOWYCH, No 5, 1977, pp 99-116.
15. See R. S. Pindyck, "Gains to Producers From the Cartelization of Exhaustible Resources," REVIEW OF ECONOMICS AND STATISTICS, No 2 (May), 1978; Cf T. Moran, "Why Oil Prices Go Up -- the Future OPEC Wants Them," FOREIGN POLICY, No 25, 1976/77.
16. J. E. Hartshorn, "Objectives of the Petroleum Exporting Countries," London-Nicosia, 1978, page 14.

17. See E. Penrose, "OPEC's Importance...," op. cit., page 18.
18. See S. F. Singer, "Limits to Arab Oil Power," FOREIGN POLICY, 1978, pp 65-67.
19. See S. Krzywinski, "More on Import Efficiency," HANDEL ZAGRANICZNY, No 1, 1979, page 12.
20. Cf M. Byczkowski and J. Brzozowski, "Polish Foreign Trade -- Current Plan Problems," RYNKI ZAGRANICZNE, No 55, 1979.
21. My own calculations, based on figures contained in Central Statistical Administration 1979 Statistical Bulletins, No 1-5, and in DIRECTORY OF TRADE, No 2-3, 1979.
22. "Polish Foreign Trade in 1978," HANDEL ZAGRANICZNY, No 3, 1979, page 4.
23. PETROLEUM ECONOMIST, No 5, 1979, page 217. For comparison we might state that world oil production totaled 22,904,733,000 barrels in 1978.
24. PETROLEUM ECONOMIST, No 5, 1979, page 212.
25. Ibid., No 4, 1979, page 172.
26. "Polish Foreign Trade in 1978," op. cit., page 6.

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**CONFERENCE ON EXPORT OF POLISH TECHNICAL KNOW-HOW**

Warsaw SLOWO POWSZECHNE in Polish 22 Jan 80 p 2

[Article by (wp): "How To Obtain Better Results--Export of Technical Know-How"]

[Text] Own information--As a result of the endeavors of the Main Technical Organization (NOT), a nationwide conference devoted to elaborating the theses for the development of the program for Polish technical know-how export, and also recommendations for discussion at the Eighth Party Congress was held in Warsaw on 21 January 1980.

Zdz. Kurowski (Master's in engineering), member of the PZPR Central Committee Secretariat and head of the Light Industry, Trade, and Consumption Department of the PZPR Central Committee; Dr (Eng) Al. Kopec, Minister of Machine Engineering Industry and president of NOT; M. Kazmierczuk, undersecretary of state in the Ministry of Science, Higher Education, and Technology; R. Strzelecki, undersecretary of state in the Ministry of Foreign Trade and Maritime Economy; and also representatives of the Planning Commission; the Polish Academy of Sciences (PAN); the Ministry of Finance; the Ministry of Labor, Wages and Social Affairs; the directors of foreign trade agencies; scientific research institutes, industry and also the NOT social aktiv participated in the conference which was chaired by the secretary general of NOT, Docent Dr habilitatus Eng L. Wasilewski.

The program reports were given by L. Lachowski, chairman of the NOT Scientific-Technical Committee for Policy, Exports and Imports and director general of the POLIMEX-CEKOP Foreign Trade Agency, and M. Kazmierczuk, undersecretary of state in the Ministry of Science, Higher Education and Technology, while Dr Eng J. Kopytowski (Ministry of Chemical Industry) and Prof Dr hab Eng J. Modrzewski (Ministry of Machine Engineering Industry), in order to familiarize the attendees, spoke on the role, significance and problems of the development of the export of technical know-how from the viewpoint of the developmental industrial sectors.

The authors of the papers and the discussants made a comprehensive evaluation of the current situation in the export of technical know-how

in light of the existing organizational ties and the regulations and legal acts which are in force, turning particular attention to the role of the export of technical know-how embodied in the complete industrial installations as well as to the significance of the export of Polish specialists ("ambassadors" of technology) and the assessment of the factors motivating and inhibiting development. They discussed the problems of exports and services in the scientific research base of higher schools and training-production centers, as well as the role of NOT as a federation of scientific-technical associations in working for the development of the export of technical know-how and the integration of the actions of the technical and foreign trade sphere.

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OFFICIAL SUMMARY OF 1979 POLISH TU ACTIVITY

Warsaw CLOS PRA(1) a Polish 5-6 Jan 80 p 3

[Interview with Jan Pawlak, Secretary of the Central Council of Trade Unions]

[Text] It can be said that the international activity of the Polish trade unions in 1979 was certainly extensive. We have frequently informed our readers about meetings, talks, joint seminars, and conferences with the representatives of trade unions from fraternal socialist countries as well as from capitalist and developing countries, and about our participation in international conferences and in the deliberations of the International Labor Organization. We have invited Jan Pawlak, Secretary of the Central Council of Trade Unions, to talk about this activity.

[Question] How would you characterize in general these international trade union contacts in 1979?

[Answer] Let me say at the outset that the international contacts of the Central Council of Trade Unions (CRZZ) as well as of the individual unions were just an outgrowth of the activity begun in the preceding years. The year 1979 was certainly particularly rich in contacts on the international level for the Polish trade union movement. Our aim was to achieve further progress in the field of viewpoint exchange, mutual understanding, cooperation, solidarity, and unity of action with all trade unions regardless of their international affiliations.

This unity of action is immensely important to us alone as well as to the trade unions in other countries and to the working people around the world. For the union members constitute the most powerful force in the struggle for social justice and progress. That is why the Polish trade union movement has done a lot in this field by considering this activity as a priority, which is necessary and bringing results on several planes, and at the same time being our contribution to the realization of the Final Act of the Conference on Security and Cooperation in Europe, and thus constituting an important factor in the understanding and cooperation between nations.

[Question] Considering different orientations, views, and affiliations of the individual trade unions this cooperation has a diversified character, has it not?

[Answer] Naturally. We have different aims in our cooperation with the trade unions in the socialist countries, and different in capitalist countries, and different yet in contacts with the young, and often inexperienced, unions in the developing countries.

[Question] Now, then, would you briefly characterize our contacts with the trade unions in socialist countries?

[Answer] The cooperation with the trade unions in socialist countries qualitatively differs from that with the labor movements in capitalist and developing countries. The unity of purpose between our countries enables us to study in depth the means to solve the social problems of the working people and their participation in the process of selfrule. These issues are explored at the consultation workshops for the managements of the central trade unions councils and individual unions, subject seminars as well the exchanges of worker brigades, of workers involved in work improvement suggestions, and the like. Of particular value is the broad exchange of experiences with the Soviet trade unions.

[Question] And how would you characterize our cooperation with the trade unions from capitalist countries?

[Answer] The past year brought further significant progress in the contacts with trade unions from countries of different socio-economic systems. Our interest in these contacts stems from both our search for understanding levels as well as from the aim to utilize the chance of the experience exchange in many fields common for all working people. These are related to employment, standard of living, safety on the job or environment protection. Many problems requiring explanation stem above all from the developing relations between our countries, and most of all the economic cooperation, which often creates confusion and misunderstandings among the trade unionists in the West. For international cooperation affects employment and the material well being of the working people. To us, however, it is of importance to fight back the growing protectionist tendencies in the West, a trend which the labor movements of these countries are drawn into. Above all, however, it is important for our Western partners to understand the role played by trade unions in socialist countries.

All of our contacts with trade unions in capitalist countries aimed at discussions of these problems, clarification of confusions and bringing closer the differing viewpoints; specifically at the initiative of the Central Council of Trade Unions round table conferences were held last year in Warsaw with the Austrian (OeGB), West German (DGB), and Italian (CGIL-CISL-UIL Federation) trade union officials. All of these conferences undoubtedly contributed to the breaking down of some thinking barriers and of inter-

pretations of certain phenomena by our partners; they were also a forum for better learning and rapprochement as well as a promise of further and closer cooperation.

In 1979 our contacts with the French labor movement, and particularly with the Universal Confederation of Labor (CGT) -- the strongest trade union organization in France -- as well as with the trade union movements in Italy, Spain, Portugal, and Belgium experienced considerable animation.

[Question] There are possibly other problems in cooperation with labor unions in the developing countries, aren't they?

[Answer] Totally different. In most cases we can talk about the process of strengthening independence and statehood. Similar situation is characteristic for the union movements there which are for the most part young, often not hardened enough, and working on finding the best course of action for themselves. Our contacts with these trade unions are an expression of solidarity of the Polish trade union movement with the national liberation movements and all forces fighting for progress, social justice, and against neo-colonialism and racism as well as an expression of assistance in solving of not only organizational matters, and of training of the union cadre, but also of such problems as job safety and health, social security guarantees, etc.

[Question] In addition to bilateral cooperation with trade unions in other countries the Central Council of Trade Unions took an active part in the work of international organizations . . .

[Answer] Naturally. First of all in the World Federation of Trade Unions of which we are a member. Last year we participated in the meetings of the General Council and of the Bureau of the Federation which focused on the preparations for the World Trade Union Conference, devoted to the discussion of the socio-economic consequences of disarmament and to the evaluation of the activities of the international craft unions. After all, it is they which constitute an effective and proven forums for taking joint actions in order to better the working conditions and living standards of the working people, and to counteract against exploitation on the part of big international companies, etc. It is worthwhile to note here that last year Poland was the host to 4 conferences of international trade unions. These conferences were attended by 600 delegates from 120 countries with many affiliated with the International Confederation of Independent Trade Unions and with the World Confederation of Labor.

[Question] In 1979 the 65th session of the International Organization of Labor took place in Geneva. . .

[Answer] We participated in the 65th session of the International Organization of Labor in addition to the Third European Regional Conference of the International Organization of Labor.

We pay tremendous attention to a discussion of the vital problems of the working people, a discussion which is a meeting place for trade union officials as well as government representatives of individual countries. Our representatives took an active part in it as on earlier occasions when as a result of Poland's initiative or its active participation a number of conventions affecting the rights of the working people and now in effect in all countries, belonging to the International Organization of Labor, were passed. The Polish delegation as well as the representatives of the trade union central councils from other socialist countries emphasized the need for a new regulation of the right to work by the International Organization of Labor. This is supposed to happen now as a result of a modification to the Convention No. 122 concerning the employment policy.

The 65th session also passed two new conventions concerning the job safety for sea dock workers as well as the leisure time for people employed in the highway transport. The introduction into the documents of the 65th session of statements pointing out to the interdependence between disarmament and economic and social development has to be regarded as a great success of socialist countries and of progressive trade unions of the West.

[Question] So the connections and interdependence of these matters finds more and more understanding. . . .

[Answer] Yes. This interdependence between disarmament and economic and social developments of individual countries and of the whole world finds more and more understanding also in the West, and the same can be said about problems concerning the strengthening of our security and peace. These fundamental problems of mankind constitute basic directions of the activity of the World Federation of Trade Unions. What matters here is to win over all of the trade unions regardless of their international affiliations and political views to achieve a unity of action in this matter. The World Federation of Trade Unions makes many efforts in this direction to achieve the unity of action of all trade union members in the world in these matters so vital all people. Unfortunately, this unifying activity of the World Federation of Trade Unions does not find any understanding in the International Confederation of Independent Trade Unions and in some of its affiliate organizations. And yet a fragmented trade union movement in the world has smaller chances for an effective action, and this is harmful to all working people, also those in the West.

The unified activity in the interests of the working people in such areas as their rights, social progress, betterment of material situation as well as in those most important matters to all of us: security, peace, and disarmament is a fundamental matter. Particularly now, when the NATO has just made a decision on production and location in Europe of new types of nuclear missiles, to achieve this unity of action and counteraction against the attempts to create a nuclear danger on the European continent, is a problem of the highest magnitude. The mass protests of the working people

in the countries of Western Europe are the best prove that these people better and better understand the danger brought about by the NATO decision, and they know that without the guarantee for the fundamental right of all people around the world -- the right to live in peace -- nobody's existence today is possible.

Learning from our experiences and taking into account the situation in the world and domestic needs in 1980, we will continue our broad international cooperation and contribute to the strengthening of the international unity and solidarity of the working people in accordance with the traditions of the Polish trade union movement.

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## CHANGES IN PRODUCTION STRUCTURE OUTLINED

Warsaw IDEOLOGIA I POLITYKA in Polish No 10, Oct 79 pp 75-83

[Article by Mieczyslaw Kaminski]

[Text] The quantitative and qualitative effects of the development of production in the national economy are at the root of the improvement in the living standard of our people which was achieved in the 1970's. The qualitative results of this development are reflected in the growth of production and of the national income, which makes possible both an increase in the level of consumption of material goods and the development of the economic potential of the country. The qualitative effects of the development of production include, above all, far-reaching changes in the structure of production. For the most part, these consist of the rapid growth of production of the means of production, the modernization of the economic potential of the economy, the broadened complementarity of a branch-subbranch industrial system, and the preferential development of entire sector-branch complexes which are especially close-linked with improving the living standard of the people, as, for example, the economy of foodstuffs. The subject of this article is a brief characterization of these elements of production development in the 1970's.

### The Growth of the National Income

The growth of the national income is the synthetic measure of the quantitative effects of the development of the economy. It is made up of an increase in all products which ultimately determined the possibilities for satisfying consumption and production needs of society. This ultimate effect of the production activity of our society increased from 1971-1977 at a rapid rate (approximately 8.7 percent on the yearly average). This rate was greater than in the remaining European socialist countries (6.2 percent) and significantly exceeded the rates found in highly industrialized major capitalist countries. And so, during these years, Poland achieved more rapid progress than other countries in the creation of a material base for improving living conditions. The needs and consumer wants of the people of our country, however, are growing still faster. The unsatisfied demand makes people impatient, especially since we still

have a long way to go to attain the level of consumption of countries with the highest economic standards. Further narrowing of this gap will be one of the main tasks of the socio-economic program for national development for the 1980's.

The growth rate of the national income in the 1970's compares favorably with that of the preceding decade, as Table 1 illustrates.

Table 1. Average yearly growth rate of generated national income (fixed prices, in percentages)

<u>Specific area</u>	<u>Average yearly growth rate</u>		
	<u>1961-1970</u>	<u>1971-1977</u>	<u>1971-1980</u>
National economy	6.1	8.7	6.6
Industry	8.3	10.1	7.8
Construction	6.7	9.9	6.6
Agriculture	0.9	0.9	1.5
Forestry	0.2	2.5	1.7
Transportation and communication	6.9	10.6	8.2
Trade	5.4	9.8	7.0
National income per inhabitant	5.1	7.6	-

Source: ROCZNIK STATYSTYCZNY 1978, GUS [Chief Central Statistical Office], pp 54-55; Maly ROCZNIK STATYSTYCZNY 1979, GUS, pp 51-54, prognosis for 1980 prepared on the basis of trends from 1971-78 and proposals for development for 1979-80 (this last source will be known further on in this article as the "prediction").

The table shows that the average yearly growth rate of the national income increased from approximately 6 percent in the 10-year period from 1961-70 to 8.7 percent in the years 1971-77 and will reach perhaps 6.6 percent for the whole decade of the 1970's. Only agriculture shows a lower than average growth rate in comparison with the average in the national economy. Here results of production depend to a large extent on changes in climactic conditions. Progress in agriculture planned out in the Resolution of the 7th Party Convention was impossible to achieve in the 1970's. Very unfavorable climactic-natural conditions interfered, and, as a result, the growth of crop production in the years from 1974-77 suffered. This limited the national fodder base and resulted in a decrease in the number of farm animals, especially hogs, from 1975-77.

In industry net production grew in the 1970's by more than 110 percent. This relatively high rate was achieved primarily as a result of the speeded up development of modern branches of industry, that is, the electrical engineering and chemical industries.

The figures cited in Table 1 show a developmental trend based on the increased growth rate of the national income in the period 1971-77 and the decreased growth rate in the final years of the present decade. This trend is a result of proposals of the accomplished strategy of the economic development of the country. Two concurrent goals have been taken on in the strategy: a) the modernization of the economy through the development of select new branches of industry; b) the acceleration of the production of the means of consumption of production for export purposes. Achieving these goals of material production development necessitated the accelerated expansion and modernization of the production system with the aid of internal measures and licensed purchases in the first half of the 1930's. This was guaranteed by the modernization of the production potential of the economy and a substantial increase in the growth rate of production. In the second half of the 1970's it became possible, on the basis of the expanded production potential and the technical standard which had been achieved, to transform the structure of production according to the proposals of the preferential expansion of market production, housing construction and the food economy.

Structural transformations in the economy based on the acceleration of growth of terminal production, especially of the means of consumption and of production designated for the foreign market bring about changes in supply co-production and organizational connections. The expansion and fortification of new forms of connections of this sort and the corresponding reorganization of the production system takes a certain amount of time, during which new systems of connections are revised, causing a temporary slowing of the growth rate of production. The slowing down of this rate has also been affected by the above-noted climactic-natural conditions which have been unfavorable for the development of agriculture, for many years, and also by the worsened external conditions resulting from recession and inflation on the world capitalist market.

#### The Principal Directions of Structural Change in the Economy

Among the important directions of structural change in the economy in the 1970's was the modernization of the production of the means of production, and, on this basis, of the production potential of the economy; second, the expansion of the branch-subbranch complementarity of industry. Modernizing the production potential results from the accelerated development of those branches and subbranches of industry in which modern means of production are developed for all branches of the economy. This includes supply goods as well as modern materials for production.

Investment-supply goods, that is, machines, tools, production equipment, means of transport and other means of labor used in the whole national economy are produced primarily in the electrical engineering industry. The technical standard of all of our industry and of other branches of the national economy is dependent on the volume, structure and technical standard of production in this industry. Production in the electrical engineering industry in the 1970's has grown faster (12.8 percent) than production in our industry as a whole (9.2 percent). Within this branch of industry, production in the electrotechnical, the electronics, the precision-instruments and the machine industry subbranches showed the greatest rate of growth. These are the most modern subbranches of the industry, and their rapid development guarantees our national economy modern means of production.

The growth of machine production from 1971-1978 by more than 14 percent on the yearly average shows the great effect the machine industry has on processes of technical-technological reconstruction in the economy. The production of mining machines and equipment grew in this period by 12.8 percent annually, enabling the modernization of mining machinery and the complex mechanization of extracting coal from wall faces. In 1980 more than 50 percent of all coal mining will be done on faces outfitted with mechanized structures. To a significant degree, systems and machines for chemical processes have been replaced and modernized, as well as metallurgy equipment and machines, and machines for use in the textile industry. The production of machines and equipment in conjunction with the technical reconstruction of agriculture and the processing of farm products has undergone intensive development.

The average yearly growth rate of machine and equipment production for road-building projects reached approximately 20 percent between 1971-80. As a result, production of this equipment has been increased by more than five times. At the same time these are modern means of production, which include heavy construction machinery, especially mechanical shovels, bulldozers, track and wheel cranes, all serving the mechanization of construction projects. Industry is also serving the demands of the building construction industry, especially of housing construction, with water-sewage and sanitation plumbing equipment, cables and wires, and electrical-wiring equipment.

The 1970's ushered in a period of thunderous development of the precision-instruments, electrotechnical and electronics industries, thanks to the utilization of our own technical knowhow, licenses bought from other countries and the policy of investment that was carried on. By 1978, production in the precision-instruments industry exceeded 1970 levels by more than four times. One of the contributing factors was the growth by more than five times of the number of electronic digital computers and the growth by more than four times of the value of equipment of automatic regulation and control. Expanded production of this modern equipment enabled the speeding up of the organization of systems of data collection and the processing of information necessary for directing socio-economic processes. The electronics industry was practically

created from the ground up in the 1970's. We began production of silicon discrete semiconductors, hybrid and integrated circuits, passive sub-assemblies, integrated heads and multifilm printed circuits. The development of the electronics industry up to the present has made it possible for us to produce colored television sets.

The production of automatic equipment and goods in the electronics industry, machine tools, production engineering equipment, entire installations and industrial equipment, and farm machines and implements, all of which were developed in the 1970's, guaranteed an increase in the technical level of production in all sectors of the national economy. The machines and equipment generated enabled us to replace and renovate a significant part of our production system. The expanded sub-branches of our most modern industry (precision-instrumental, electrotechnical and electronics) are a good beginning for future undertakings both in the sphere of broadening our economic cooperation within the RWPG [Council for Mutual Economic Aid] and in the sphere of co-production connections with other countries. They likewise create conditions for enriching the structure of market supply and for raising the living standard of the people, and effect which has already been felt.

The chemical industry, as well as the electromachine industry, has also been instrumental in broadening and hastening of the economy in the 1970's. Unlike the machine industry, the chemical industry helps to raise the technical level of the production of articles of labor (materials, semi-finished products and the like), and not of the means of labor (tools, machines and the like). Modern chemistry supplies articles for further production with high technical parameters and varied and broad application, which if successful will replace articles made from scarce natural resources. This makes the chemical industry able to increase the scale of production and causes it to be a carrier of technical progress and modernization in all sectors of the national economy.

In the 1970's the production of many new and modern articles for increasing farm production was set in motion and expanded. Among these we can number artificial fertilizers, mixed fertilizers, plant pesticides, chemical additives to fodder, soil products and products used in the construction of livestock buildings, as well as other chemical products adapted for special working and living conditions in the country.

In conjunction with the growth of refinery-petrochemical production and crude oil refining, the production of plastics has undergone accelerated development. The average yearly growth rate of production in this area from 1971-1978 was approximately 10 percent. In 1980 this industry will exceed the level of production of 1970 by more than three times. The production level of plastics achieved enables the rapid growth of their usage in the construction industry, where they are used for flooring materials, wallpaper, small construction parts, plumbing materials, and the like. Plastics and other chemical products are more and more universally used in the machine industry, as, for example, in structural materials,

insulating and finishing materials. The production of plastics, however, falls behind the level achieved in highly industrialized countries, despite the relatively high rate of growth. The growing need for these articles in many branches and sectors of our national economy will, however, not be met in full by 1980.

Besides the modernization of our production potential, a second direction of structural change in our economy is the broadening of the branch-subbranch complementarity of industrial development. This complementarity is based on the strengthening of our energy-fuel and raw materials bases, the development of a modern processing industry and the conversion to a priority development of market production. These mutually complementary directions of industrial development guarantee the coordination of the production of finished goods designated for the internal market and for export with the generation of raw materials and energy, as well as modern machines and production equipment.

Broadening the complementarity of industrial development in the final years of the present decade has accompanied a decrease in the rate of production growth. An increase in the growth rate of production in the years 1971-1975 occurred as a result of the modernization of the production system undertaken at that time on a large scale, and also as a result of the building of structures with the use of modern technological developments. This increase was achieved as a result of the concentration of internal means and the influx of foreign credits. The dominant trait of industrial development and the increase in the growth of production of articles of consumption. In the early years of the present decade, however, tasks of boosting and modernizing industry and the economy, while preserving the precedence of social goals predominated. In the final years of the decade, however, the coordination of development has prevailed, preferential treatment in individual sectors of the economy has leveled off, and production activity has been adapted to our existing raw materials potential with a view to accelerating the production development of articles of consumption. In summary, earlier and present tasks are complementary, guaranteeing the continued growth of the living standard of the people and their continued economic potential, and strengthening the foundation for new kinds of tasks to be undertaken in the 1980's.

#### The Development of the Food Economy

A primary goal of the structural changes in the economy, and, within the bounds of these changes, of the broadened complementarity of the development of individual areas of production in the 1970's, has been the hastening of the development of the production of articles of consumption. An important component of this primary goal is the creation of conditions favorable for the development of the food economy, and especially agricultural production and the food industry.

The effects of the development of farm production took shape under the dominant influences of two factors: 1) the growing supplies of technical and economic means and 2) unfavorable atmospheric conditions, especially in the current 5 years. As a consequence of the turn of unusually bad atmospheric conditions, the growth of farm production was stymied in 1974. By 1978 it had exceeded the levels of 1974, but the average yearly growth rate was still minimal. As a result of this trend, the predicted growth of worldwide farm production in the current 5 years is approximately 9 percent, while it had been predicted that its growth would be more than 16 percent. From 1975-77 crop production took a downward trend from 1974 levels. This was the result of lower harvest of basic crops. Grain crops decreased from 22,977 thousand tons in 1974 to 19,557 thousand tons in 1975 and 19,399 thousand tons in 1977. Potato crops also fell off during this period. This limited the national fodder base for animal production. In 1976 there occurred a sharp drop in the number of hogs (to 18.8 million head) preceded by an insignificant drop in the number of hogs in 1975 (to 21.3 million head). In 1975-76 there was also a drop in animal production. Overcoming unfavorable tendencies in cattleraising necessitated the additional import of grain and fodder. This is not the only method for actively overcoming disruptions occurring in farming. Favorable socio-economic conditions for the development of farming are systematically being created.

Achievements up to the present for overcoming unfavorable trends in the development of farming justify the prediction, that in a 10-year period, crop production will increase by approximately 15 percent, and animal production by more than 40 percent. Growth in the procurement of slaughter animals, especially hogs, will be significantly greater, and can reach approximately 6 percent in a yearly average. This growth rate, however, is insufficient for meeting the rapidly growing demand for meat products, in the face of an average yearly growth rate of monetary income of the people and wage-funds exceeding 12 percent.

A major factor for reinforcing positive cattleraising trends in recent years has been the full utilization of the potential of the earth, as well as the further development of fodder production and wise use of fodder so that the growth of animal production can be based to a maximum degree on the resources of our own fodder farmers. These directions of activity are based on the technical reconstruction of farming which we have achieved thus far.

During the 1970's there was a rapid growth in the accessibility to farming of industrial-derived means of production, especially of mineral fertilizers, fodders, farm tractors and related machines, combines, construction materials and means for conserving vegetative life (see Table 2).

Supplies of the basic means of production for farming have grown in the 1970's on an average of two times faster than farm production. This represents the realization of the program for the development of farming and the food economy announced at the 15th Plenum of the PZPR Central Committee (1975). This program outlines, among other things, the plans for modernizing the material-technical base of farming. Achievements in this area up to the present time have guaranteed a significant mechanization of production processes and the application of modern production technology.

Table 2. Supplies of primary means of farming production (in percentages)

<u>Means of production</u>	<u>Units of measure</u>	<u>1970</u>	<u>1978</u>	<u>Average yearly growth rate</u>	<u>1980</u>	<u>1970</u>
		<u>1971-1978</u>	<u>1971-1980</u>	<u>1978</u>	<u>1980</u>	
Mineral fertilizers in concentrate form NPK	thous. tons	2416	3605	5.13	5.2	166
Concentrated fodder	thous. tons	4008	9145	10.85	7.0	200
Tractors, farm machines and implements	billion zloty	9.6	33	15.05	12.3	320
Farm tractors	pieces	29009	60500	9.65	7.9	214

Source: ROCENIK STATYSTYCZNY 1978, GUS, p 235, 239; MALY ROCENIK STATYSTYCZNY 1979, GUS, pp 147 and 149; also, the prediction.

The continued modernization of production and technology in farming has enabled the development of the farm machine industry. In the current 5 years, tractor plants in Ursus are being expanded. In 1979, in co-production with other national enterprises, these plants set in motion the mass production of farm tractors under license. In the years from 1981-85, supplies for farming will reach 450 thousand tractors, whereas in 1970 the total number was 29 thousand pieces, and in 1978, 59.7 thousand pieces. Each tractor will work approximately 20 hectares of cropland in 1985, while in 1970, each tractor worked 70 hectares, and in 1977, 40 hectares. The production of combine-harvesters, sugar-beet harvesters and potato harvesters as well as of related machines has also developed. As a result of the expansion of the factory in Plock, the production of combine-harvesters is growing to 8 thousand pieces annually. The factory in Słupsk will produce 1.4 thousand combines for harvesting sugar beets, and the factory in Strzelce Opolskie, approximately 8 thousand combines for harvesting potatoes. The use of mineral fertilizers grew from 123 kg. of NPK (nitrogen-phosphorus-potassium) in 1970 to 193 kg. of the same per hectare in 1978. Further steps for supplying farming with mineral fertilizers will be taken upon completing of the construction of a chemical combine in Police. The expansion and modernization of existing factories for producing mineral fertilizers is also taking place.

Our farming industry is in the initial phase of technical reconstruction, consisting primarily of tractorization and the mechanization of production processes. The production potential of industry, which was developed in the 1970's, makes possible the further progress of the mechanization of farming. The process of the technical rebuilding of farming under conditions of a small-producer peasant economy is linked in many ways with the process of socialist transformation. A longstanding strategic goal of the farm policy of the PZPR is based on a realistic evaluation of the development of social elements of cooperation and production in farming. This goal is the linking up of structural change, for example, in such social forms as the concentration and specialization of production and inter-sector cooperation, with the constant growth of farm production.

There was significant development of the food industry in the 1970's. It was, above all, a qualitative development, characterized by integration with the farm raw materials base and the national and foreign market.

Special preference has been given to those branches of the food industry which represent the transformation of animal branches of the food industry which represent the transformation of animal protein, that is, the meat, milk and poultry breeding industries. A significant growth of production has been achieved in subbranches in which high-grade goods are produced that is, in the food concentrates industry, frozen food industry, fruit-vegetable industry, and potato industry. Visible progress has been made in the growth of the production of convenience foods, as, for example, ready-to-eat foods, canned goods, ready-to-cook foods, serving-size products, and frozen foods.

The development of the manufacture of farm products has necessitated the expansion and modernization of production capacity in the food industry. From 1971-75, 9 modern factories of the meat industry were built (with the use of imported production flowlines), 4 cured-meat plants came into use, 45 modern milk plants, several large refineries, plants for concentrated foods, cold storage plants and fruit-vegetable processing plants. The expansion of our production capacity in this industry is also being continued in the current 5 years. The expanded and modernized production capacity of the food industry had favorably influenced the changes in the structure of production of foodstuffs, enriching its variety and modernizing the forms in which these items reach the people.

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## IMPROVED GRAIN VARIETIES PRODUCE HIGHER YIELDS

Warsaw TRYBUNA LUDU in Polish 4 Jan 80 p 5

[Article by Marian Marcinczak]

[Text] One of the basic tasks of agriculture in the immediate future is and will be an increase in grain production. About 70 percent of the yield is earmarked for the needs of livestock production, and it accounts for one-third of the overall fodder total.

Everything indicates that the need for grain will rise in forthcoming years. Thus, the role of all those factors which influence the tempo of increase in their production will be all the greater. According to the outlines of the plan, we are supposed to achieve an increase of grain yields to 30-32 quintals per hectare in 1985, and of total cropland to 8.5 million hectares (from the present 7.9 million hectares). This is a vital condition of the fodder balance.

But this will not be an easy task, despite the fact that the level of potential grain productivity is set very high by growers. For example, wheat, the grain with the greatest possibility of crop yield, yields 110 quintals/hectare on farms irrigated in near optimal conditions. The European record for cultivation under production conditions is 100 quintals/hectare, while the Polish is 90 quintals/hectare. Theoretical calculations state that the limit of possible wheat yields is 140 quintals/hectare.

That seems improbable, especially in comparison with currently achieved yields. But the results attained in grain production of farms proves that the production potential for grain raised here creates the possibilities of attaining a significantly higher level of yields throughout agriculture. However, progress depends primarily on high fertilization, improvement of the agrotechnology and equipping of machinery for cultivating and harvesting, supply of seed, and also the creation of a structure for sowing that would facilitate the full use of the productive potential of the land and the crops.

Assuring the simultaneous functioning of all these factors will decide the tempo at which the yields will increase, although in several areas it will even be necessary to work with significant exertion. This refers

particularly to plant cultivation, which is often compared to industrial project offices preparing new technology. But it has a more complicated task. For its building materials are living plant organisms, which have to be fashioned in keeping with the needs of production and the demands of technology, over a significant--at least ten year--period of time. The horticulturist must foresee the future needs and directions of agricultural development.

The supply of new strains of winter grain field-tested in cultivation have particular importance. Presently national strains dominate in our fields, in part because, despite many attempts, foreign grains introduced into our cultivation frequently appear disappointing in our environmental conditions.

In growing rye (grown on about 3 million hectares in Poland) the greatest achievement in recent years has been the introduction to cultivation of Dankowski Gold from the plant team of Tadeusz Wolski and further strains from this "series"--most recently New Dankowski. These strains have done so well that not only are they sown on the entire cropland here, but they are also capturing foreign markets. Czechoslovakia, East Germany (it is cultivated on 80 percent of rye acreage), and recently West Germany (the strain has been written into the official register and bought as material for seed reproduction) purchase it from us.

In many lands one can observe a return to rye growing, yet frequently here the question is raised of the future of this type of grain. That future depends on the further advancement of its cultivation--on whether it will be possible to raise its potential productivity while decreasing imperfections in its cultivation (by increasing resistance to lodging and fungus diseases, attaining a higher nutritional value grain). The present state of growing testifies to the possibility of restricting these defects, while the merits of this grain (resistance to cold, drought, and acidic soil conditions) offer proof of its usefulness in our soil and climate conditions.

In the cultivation of winter wheat, sown on about 1.6 million hectares, our agriculture is also selfsufficient in terms of the variety of strains. The most widespread grown strain (on 60 percent of the acreage) is Grana (also from the plant team of T. Wolski), and in general we currently use 16 strains. Four new ones (Modra, Saga, Zeta, Begra) were put into production in 1978. Thanks to this, relative to needs and local conditions, farmers have the possibilities of choosing the proper strain. Among them are also foreign grains from East Germany, Sweden, and England (altogether sown on about 10 percent of the acreage). For example, one of these--the Swedish strain Holme--is fine, as it turns out, in the northern regions of the country. But practice thus far proves that Polish strains in general are superior to foreign--in our conditions--not only in terms of the high level of productivity potential, but also of great stability of yield and high tolerance for unfavorable environmental conditions.

But the situation is completely the opposite in the cultivation of winter barley. Its merits--including high yields, early maturation--demonstrate that its cultivation is advancing rapidly enough. Until recently, production was based exclusively on foreign strains, but the work of Polish growers is already producing results. Currently the best Polish strain is Ulan, and the growers are working on successive families.

In growing spring grains--barley, oats, and wheat--the foreign strains predominate. The situation in the national barley growing sector appears the least favorable. Foreign strains are grown on 80 percent of the acreage. Indeed, the new Polish barley, Polon (grown by the Institute of Plant Cultivation and Acclimatization) is well thought of, but simultaneously the strain Gryf, until recently highly valued but increasingly less grown, has shown to be disappointing.

But the regression in raising oats--a grain not fully appreciated among us--has been halted. Indeed, foreign strains still predominate (70 percent), but valuable national ones have also appeared

Horticulture--the introduction of contemporary strains to cultivation--is playing an ever greater role in the development of grain production in our country, in the increase of yields, and the correction of their stability and the quality of seed. Seed production is an important a basis of the reproductive cycle as horticulture. After the last harvest, the supply of agriculture with seeds for the autumn sowing went well. But conditions for vegetation on the seed plantations for spring grains were worse. The seed supply is thus smaller than planned (the supply of seed was projected to meet a need for 220-230,000 tons, but reports from the producers reveal delivery of 190,000 tons), and moreover, a certain portion of them--20 percent--will have a weaker germination power. Indeed, they will suffice for planned replacement, but may be too few for free sowing. An inadequate number of warehouses for seed storage may also influence this. The widespread usage of combine harvesting demands the immediate accumulation of the threshed grain into grain warehouses, particularly the most valuable portion--seed grain. Currently the situation is such that it is difficult to cultivate raw materials rationally, too frequently preserved in unsuitable conditions. Hence, in the immediate future the storage base will undergo considerable expansion.

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**EFFICIENT USE OF FODDER STOCKS URGED**

Warsaw TRYBUNA LUDU in Polish 27 Dec 79 pp 1, 4

[Text] The proper economizing of fodder, which has become the basis of agricultural development, is taking on special significance this year. Because of a drop in plant production, and especially because of a bad grain harvest in the current 1979-80 fiscal year--in spite of increased imports of grain and fodder, as well as 8.7 million tons of industrial fodder supplied by the government--we will have a smaller stock of concentrated feed at our disposal than we had last year.

To a significant degree, these feed shortages will be alleviated by an increase of as much as 1,250 thousand tons, or more than 370 thousand tons in comparison with the past fiscal year,--of high-albumen concentrates which will permit better use of farm-produced fodder. Increased help from the government is impossible, not only because imports are too costly, but also because of limited transportation possibilities to the country from abroad. Concentrated action is thus necessary in order to achieve maximum economy in the consumption of concentrated feed in the feeding of livestock.

The way to achieve this goal is, first of all, an obviously more economic use of present supplies of not only industrial feed, but also of one's own, farm-produced feed. Calculations show that from 1976 to 1980 on the average 7.35 feed units were consumed in order to produce 1 kilogram of cattle on the hoof. This represents a very high and inefficient consumption of fodder, and could successfully be decreased by more than 5 percent, which would allow for a sizeable savings for animal husbandry.

At the same time, a potato crop of nearly 3 million tons more than last year significantly compensates for the deficit in concentrated feed, with the condition that many farms once again establish for themselves a program of feeding their pigs with their own farm feed, primarily potatoes.

Our hay crop is also somewhat larger and of decidedly better quality than last year's, as are the second crops and corn. These crops should be used economically to maintain and, where possible, to increase the number of cattle and sheep.

Economic stimuli should now be introduced in order to encourage the rational use of one's own feed. In accordance with the resolution of the Council of Ministers of 2 January 1980, a monetary equivalent will be introduced in the amount of 3 zlotys for each kilogram not bought by individual farmers entitling them to the contracted animal production of concentrated feed, which will also be paid retroactively by right of the power acquired in this area in December of this year. Given the sound policy of the communal authorities and the agricultural service, this will be a weighty instrument affecting the economizing of concentrated feed on farms which possess enough feed of their own in stock to maintain and develop livestock production. They will be able to replace the concentrated feed they lack with their own feed in stock. Similarly, bonuses for thrifty and highly efficient economizing will be applied on socialized farms as well.

The measures which have been undertaken form the basis for greater economizing not only of concentrated feed, but also of one's own feed supplies, given the improved economizing of the farmers themselves, as well as the over-all administration of feed economizing on the national scale, and on the voivode, gmina, and village scales. Voivode and gmina feed collectives, which will shortly be called upon in accordance with the provisions of the resolution of the Council of Ministers mentioned above, must be equal to this task.

The task of the voivode collectives, administered by the voivodes, will be to determine the amount of feed supplies and to evaluate feed economizing in the gminas as well as in individual sectors of agriculture, taking into consideration the degree of use of one's own feed and the possibility of increasing production.

Voivode collectives will also exercise control over the activities of the gmina feed collectives, which are administered by the gmina office managers.

The effectiveness of the activity of the gmina collectives will be determined primarily by permanent and direct contact not only with individual villages but also with agricultural groups, for it is they who will undertake the activity of intensifying the production of farm-produced feed in order to improve the use of feed supplies already on hand by means of improving the technology of feeding, etc. In addition, gmina collectives

will be responsible for the regular distribution of industrial feed to the individual villages and farms as determined by the feed situation, by trends in livestock production, and by production results and the purchase of agricultural products.

The characteristic feature of food problems is their variableness every year, and even every season. The administration of feed economizing, therefore, must be elastic and must allow for appropriate solutions for every situation.

9473

CSO: 2600

POLAND

BRIEFS

FORK LIFT EXPORTS--The Transport Equipment Factory (FUT) in suchedniow [Kielce voivodship] has been known for years as a producer of electrical and combustion-powered small transport vehicles. The populat "Raki" handle well in intra-plant transport in factories in Poland and abroad. Last year, FUT sold over 47 million foreign exchange zlotys' worth of "Raki's" abroad and the total value of production exceeded 1,130 million zlotys. One of the most important tasks this year is the undertaking of the production of modern fork lifts with a lifting capacity of 2 and also 2.5 tons in cooperation with foreign firm. FUT is expanding and new social facilities are being added. A worker's cafeteria is in the plan. [Text] [Warsaw GLOS PRACY in Polish 17 Jan 80 p 3]

METHANOL PRODUCTION PROSPECTS--Interview with Engineer Stanislaw Duszkiewicz, chief specialist for research at the Transportation Equipment Plant in Mielec: [Q] In order to talk about the mass use of methanol, it is necessary first to have it... [A] Research on the use of methanol was initiated 2 years ago. It was said at that time that methanol would be attainable on a broad scale. [Q] Methanol is currently more expensive than diesel oil. One kilogram of methanol costs 13.5 zlotys. [A] Even if methanol, under mass production, were to be more expensive than diesel oil, the fact that methanol could replace 40 percent of the diesel oil and could be produced for zlotys would be of primary importance. [Excerpt] [Koszalin GLOS POMORZE in Polish 2 Jan 80 p 7]

ANTI-FREEZE AGENT FOR COAL--Specialists from the caprolactam plant of the Nitrogen Enterprises in Tarnow produced, at the end of 1979 while putting a new installation into operation, the first 100 tons of "solmek"--a new Polish agent which prevents the freezing of coal in the storage dumps. The first three tank loads of the preparation were sent to the refinery in Czehowice, from where it will be delivered to coal distribution points after it has been enriched with the required components. The new Polish anti-freeze agent for coal is derived from waste products created during the production of caprolactam that were polluting the environment up to this time. The full capacity of the Tarnow installation amounts to 5,000 tons of "solmek" per year; this should fulfill the national requirements. [Text] [Opole TRYBUNA ODRZANSKA in Polish 2 Jan 80 p 1]

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14 Feb. 80